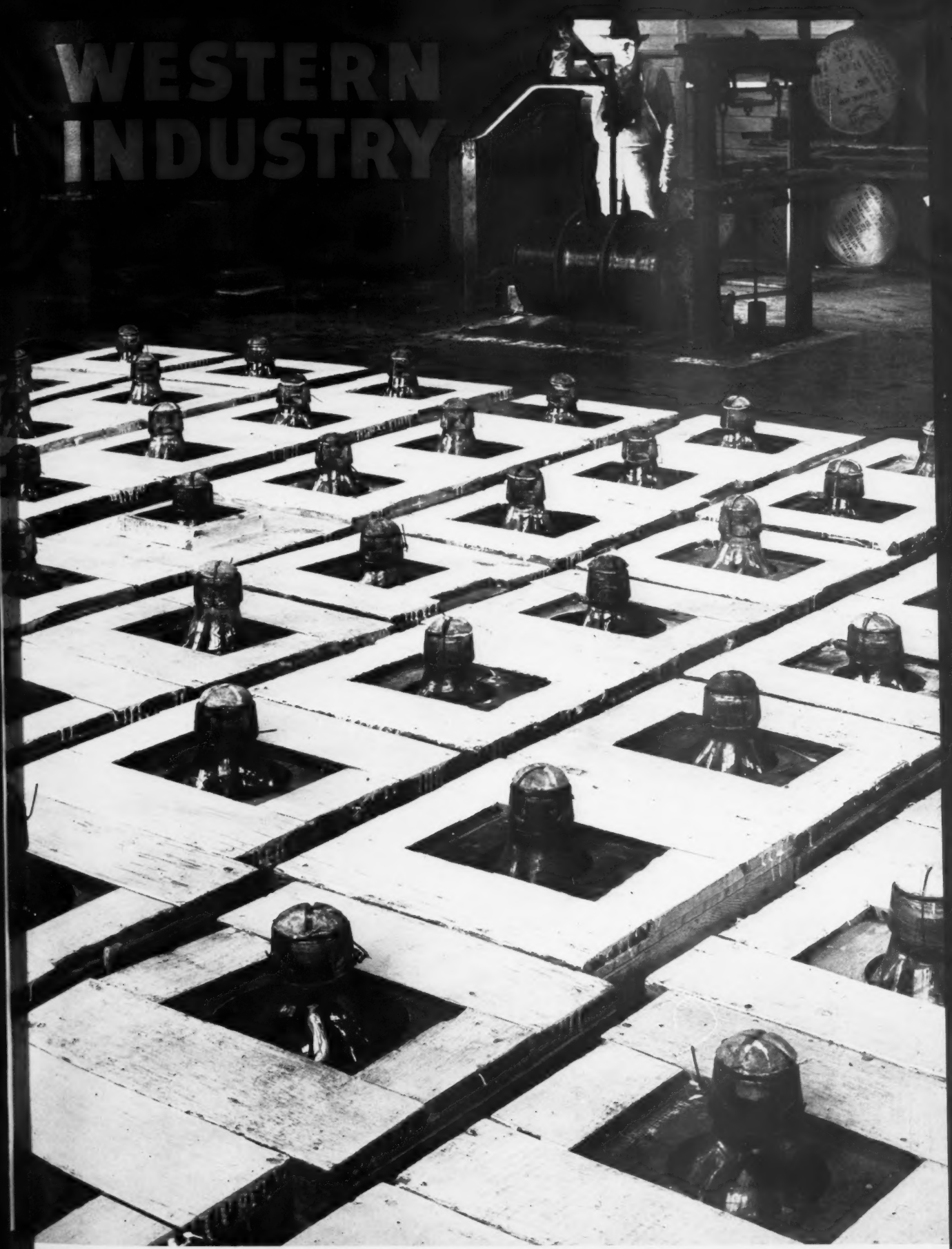
WESTERN INDUSTRY



• Chemical industries rank among the most basic and important in the West: filling sulphuric acid drums in a Pacific Northwest plant.

Twenty-Five Cents VOLUME XI NUMBER 2 February, 1946

7
REASONS WHY
SOLAR
WELDING FLUX No. 16 GH
IS THE BEST FOR THE WELDING OF STAINLESS STEEL

why SOLAR FLUX was manufactured

For fifteen years Solar Aircraft Company has devoted itself to the design and fabrication of products made of stainless steel and similar alloys. Its principal business is the manufacture of airplane exhaust systems.

To withstand the intense heat of exhaust gases, airplane manifolds must be perfectly welded.

To accomplish these results with minimum time and application effort, the Research Department of Solar developed Solar Stainless Steel Welding Flux No. 16 GH.

This flux was first used and developed exclusively for Solar's own plants. It proved itself so successful that other plants which needed a specialized flux for the welding of stainless steels made arrangements to use it. They, too, have found that for better and speedier welding and fewer rejects SOLAR FLUX No. 16 GH has no equal for the following reasons:

1. EASY TO USE

Solar Flux is easily applied with a brush. It dries quickly because it is mixed with methanol—thus parts can be welded immediately after application.

2. ADHERES BETTER

Solar Flux sticks to the metal because of the use of Methanol and its mineral binder. So tenacious is it that it will adhere to the metal in spite of frequent handling. Parts can be fluxed and stacked days ahead of actual welding, thus facilitating faster production flow.

3. IT GOES FURTHER

Because SOLAR flux can be thinly spread over the weld area—it gives from 15% to 20% greater coverage.

4. NO BINDER—NO "ETCHING"

SOLAR flux requires no shellac or other binders that cause carbon pick-up by the metal being welded.

5. PREVENTS "BURNING" (Oxidation)

SOLAR flux prevents "burning" or oxidation of molten metal during welding because certain inhibitors have purposely been introduced into the flux to prohibit the penetration of oxygen. It prevents pinholes by better elimination of trapped gases.

6. DUCTILE WELDS

Unless welds remain ductile during forming and bending, they will crack or check. Army and Navy certification of welders require that welds must not show failure by checking or cracking when bent through an angle of 180°.

SOLAR research discovered that the presence of too much boron in flux contributes to cracking. In SOLAR FLUX the boron content is carefully controlled, thus ductile welds are uniformly obtained—there are fewer rejects on inspection.

7. NO TOXIC FUMES—WIDER APPLICATION

SOLAR FLUX can be used with oxy-acetylene, atomic hydrogen or metallic arc processes with equal ease and benefit. It gives off no toxic fumes—no special ventilation is needed in the welding room.

Solar Flux Complies with Army Air Force Specification No. 11314
and Navy Department Specification No. 51F3a

Try Solar Flux At Our Expense. See For Yourself How Easily It Can Be Applied. How It Improves Welding — How Much Time It Saves.

Manufactured by

SOLAR AIRCRAFT COMPANY

National Distributor

VICTOR EQUIPMENT COMPANY

844 FOLSOM STREET, SAN FRANCISCO • 3821 SANTA FE AVENUE, LOS ANGELES

Sold by VICTOR distributors from Coast to Coast

AD 145

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Wire ahead

IT'S A FACT that inadequate wiring can reduce equipment performance by twenty-five to fifty per cent. This is true right now—and think of your greatly expanded electrical future!

Remember, wiring comes *first!* Foresighted wiring based on future needs—not tied to formulas of the past.

It costs nothing to review your wiring plans now. But it may cost plenty for shutdowns, teardowns to permit extensive alterations later.

Make a note of it: Check wiring plans! Call in your consulting or plant power engineer—electrical contractor or power salesman. Let them help match your wiring to future production hopes. Anaconda Wire & Cable Company, Subsidiary of Anaconda Copper Mining Company. General Offices: 25 Broadway, New York City 4. Chicago Office: 20 North Wacker Drive 6. Sales Offices in Principal Cities.

45308

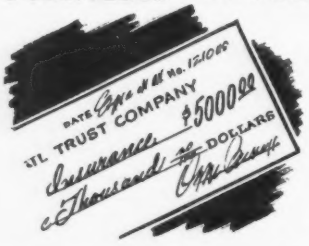
Why pay for COMPLETE equipment then cut its performance with PART-WAY wiring?
DON'T BE PENNY-WISE AND POWER-FOOLISH
ANACONDA
ANACONDA WIRE & CABLE COMPANY

You are Paying for Fire Protection...

WHY NOT HAVE IT!

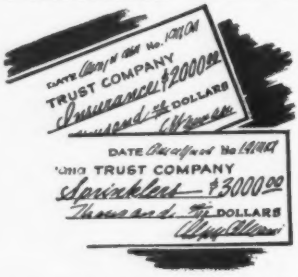
You know that Grinnell Automatic Sprinkler Systems are industry's most effective weapon against fire. But do you know that they pay for themselves in reduced insurance rates and, over a period of years, show a substantial return as a capital investment? Examine this typical case:

9-YEAR PERIOD – *Insurance Costs Without Sprinklers – $45,000*



The insurance premium on the unprotected property was $5,000 a year. Over a 9-year period, $45,000 was paid out – *an ever-existing expense with no return except in the dreaded possibility of fire.*

9-YEAR PERIOD – *Total Cost of a Sprinkler System and Insurance – $45,000*



When a Grinnell Automatic Sprinkler System was installed, the insurance premium was reduced to $2,000 a year – resulting in an annual $3,000 saving which was applied against the capital investment. *In this 9-year period, the installation paid for itself.*

AFTER 9 YEARS – *Sprinkler System Investment Earns $3,000 Annually*

After it was paid for out of insurance savings, the Grinnell Automatic Sprinkler System saved and earned $3,000 each year. Over a 20-year period, for example, *it has constantly safeguarded the property against fire – and has earned the substantial sum of $33,000 for the business.* With proper care, it will continue to protect and assure insurance savings during the life of the property!

ACT NOW! – A nearby Grinnell engineer will be glad to discuss Automatic Sprinkler Fire Protection for your property. Grinnell Company, Inc., Executive Offices: Providence 1, R. I. Branch offices at Los Angeles, San Francisco, Oakland, Seattle, Vancouver, B. C.

GRINNELL

FOUNDED 1870

DEVOTED TO THE DEVELOPMENT OF AUTOMATIC FIRE PROTECTION SINCE 1873 . . . PROTECTING OVER SEVENTY BILLION DOLLARS WORTH OF THE WORLD'S PROPERTY

EDITORIAL COMMENT

And So We Fight

THE letterhead of the Colorado Employers' Council bears this motto: "Dedicated to the principle that labor relations should be thought out, not fought out."

But as to the amount of long-range and careful thinking that seems to have been given generally to the post-war wage situation, some excerpts from the address of Harrison R. Robinson, president of the California State Chamber of Commerce, at the chamber's meeting in Los Angeles in December are illuminating.

First of all, Mr. Robinson pointed out, the government released wages from government control under stated terms and conditions, creating a false impression that all employers were free to raise wages. Then the government gave out anonymously a three-paragraph statement which nearly everybody read, to the general effect that employers could raise wages 24 percent and still keep normal profits.

Almost three months later the President gave out a lengthy message which very few people read, but half buried in it was the correct statement that no single percentage of increase in wages could possibly be applied to all industries, or even to all firms within an industry, and that some could not make any raise in wages without raising prices. However, no government spokesman has since publicly acknowledged or emphasized that statement, despite the fact that the whole country is rocked with strikes for a universal 30 percent increase.

Mr. Robinson was also a bit caustic about employers. He said:

"What did the employers do? First, they waited to see if the President would announce a definite percentage of wage increase favored by Washington. Then even those who could increase wages without price increases, and their number is legion, procrastinated, and most of them still do.

"Employers must accept some hazard in arriving at the best wages they can pay in the first stages of the postwar transition. Between the fumbling of government, business and labor, the industrial machine is stuck on dead-center. Even at considerable risk to themselves, the employers must get it going quickly. What have we been hearing for so long about risk capital? New conditions bring new problems, new problems bring new hazards. Just now, higher wages is one of them."

As for the union demands, he said:

"What have the unions done? I will mention only one thing out of many. The representatives of one branch of labor assume to take over in time of peace the extraordinary powers over prices and wages which government exercised in the war and is now in the process of relinquishing. They are attempting, in full public view, to cross at a vital point the line which divides democracy from totalitarianism."

And so we fight, instead of think.

Introducing a Cartoon

BACK in the early days of *Western Industry,* four years ago, to be exact, when we were just launching our program of editorial service to the industrial West, we created a department known as "Western Industry in Pictures," a miscellaneous page or two of industrial scenes. As the magazine grew the feature was discontinued because it was really nothing more than a catch-all, and pictures of real value had a good enough story attached to them to be usable on other pages. But now it has come to life again, in the form of a cartoon series, beginning with this issue. The purpose of this cartoon series will be to laugh *with* people, not *at* them, and the indulgence of our readers is requested if we should inadvertently stray from our intent.

WESTERN INDUSTRY

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OUR COVER PICTURE

• Shipping of sulphuric acid requires the maximum care in handling. If not packaged correctly serious difficulties may result. The picture shows carboys of sulphuric acid being prepared for shipment from the Stauffer Chemical Company plant at Portland, Oregon.

25c PER MONTH $2.00 PER YEAR

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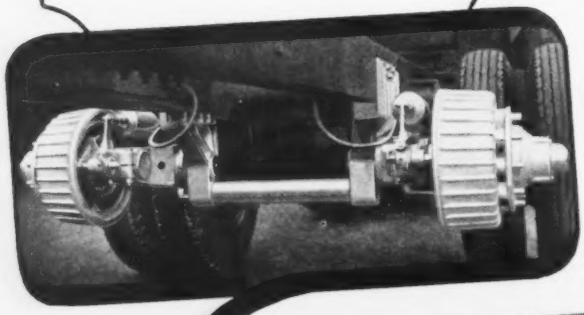
New York Office: RALPH DORLAND, District Manager, 115 Central Park West, Telephone: ENdicott 2-1665.

Application for entry as second class matter is pending.

The New Model Fruehauf 3rd Axle Attachment

Check THESE POINTS

- Long spring action provides easier riding.
- Rocker arm shaft of chrome molybdenum steel can be adjusted to give proper load carrying capacity.
- Axle spindles of heat-treated alloy steel. On the Heavy Duty Attachment the 13,000 lb. spindle has been raised to 20,000 lbs. On the Light Duty Attachment, the 11,000 lb. spindle has been raised to 13,000 lbs.
- Cambered at time of installation for particular road conditions.
- Each wheel has independent full knee action.
- Heavy duty over-size Timken bearings for easier rolling, long life and correct wheel alignment.
- Only three lubricating points on each side and two wearing parts.
- Brakes equipped with 360 degree slack-adjuster.
- Weight distribution between axles is variable.
- Tread dimensions may be adjusted to exact requirements of your truck.



Multiplies the Work YOUR TRUCK CAN DO

Your light or medium weight truck or Truck-Tractor can be converted into a heavy duty job which will multiply its carrying capacity—and at a fraction of the cost for the heavier type equipment. A Fruehauf Third Axle Attachment will do it, and there is no necessity for a dual drive. This device does away with all the disadvantages of a light weight job. Load impact is cut in two; the load on each wheel is reduced, and the rear end of the truck frame is stabilized; no whipping and no sidesway. It becomes safer and easier to drive, and fuel is saved because the load pulls easier.

From a bookkeeping standpoint this third axle unit has this attractive feature—it is a permanent asset. It will outlast any truck on which it is installed. If you dispose of the truck, it either adds to the trade-in value or it can be easily removed for use on your new equipment.

Ask your nearest Fruehauf Branch to demonstrate the many ways in which a Fruehauf Third Axle Attachment can help to reduce your hauling costs.

Write for free descriptive literature.

World's Largest Builders of Truck-Trailers

FRUEHAUF TRAILER COMPANY

Western Manufacturing Plant—Los Angeles

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FRUEHAUF TRAILERS "Engineered Transportation"

In Our Mail Box

OPA Pricing

Editor, Western Industry:

I have just read, with great interest, the article in the December issue of *Western Industry*, entitled "Only a Few Firms Apply for OPA Reconversion Prices."

May I take this opportunity to express, personally and for this agency, our appreciation of the manner in which *Western Industry* presented this problem. The article not only was eminently fair, but explained, in simple and concise terms, the basic problems and requirements of reconversion pricing. Its publication and perusal by your subscribers should do much to make clear to them the responsibilities both of industry and the Office of Price Administration in the field of reconversion pricing. The benefits to both, I am confident, will be far-reaching.

BEN C. DUNIWAY
Regional Administrator, OPA
San Francisco

Labor-Relations

Editor, Western Industry:

I have just had an opportunity to read the article in *Western Industry* "Skilled Management Agents Should Handle Negotiating." The article is interesting and well written, and I agree with the conclusions.

Ten years experience in Tacoma indicates that each employer or group of employers benefits from the experience accumulated by a central office in its contacts with all sorts of employers and all sorts of unions, since there is a running continuity of problems with all of them.

M. J. MUCKEY, *Manager*
Industrial Conference
Board of Tacoma, Inc.
Tacoma, Washington

Editor, Western Industry:

Permit us to compliment you upon the manner in which the subject of labor relations was presented in your December issue of *Western Industry*. This article is by far the clearest presentation of the subject that we have ever read and we will for a long time find wide use for the comments made by the author. We would very much like to know the author's name.

LOU G. BRAYTON, Manager
Sacramento Valley Associated Industries
Sacramento, California

Editor, Western Industry:

An article entitled "Skilled Management Agents Should Handle Negotiations" which was published in the December 1945 issue of *Western Industry* we believe to be such an excellent article that we would like to distribute it to our member companies.

The Colorado Employers Council is a non-profit organization, whose membership is composed of several hundred business firms in the mountain states areas. Our organization is similar to the San Francisco Employers Council in San Francisco.

COLORADO EMPLOYERS COUNCIL, INC.
F. B. Post, Analyst
Denver, Colorado

Regional Merit

Editor, Western Industry:

Inasmuch as the company is now in process of liquidation, I decided to personally enter my subscription for one year because I felt you deserved support of western people for your good efforts on their behalf and even though I have no personal business that is particularly affected by such a publication I think that a regional representative magazine, widely circulated, is of benefit to all of us residing in this territory.

R. P. JACKSON
Secretary-Treasurer
Twinfields Oil Company
Great Falls, Montana

Western Industry In Pictures . . . . .

Any resemblance to any person, living or dead, is a stroke of good fortune on the part of the cartoonist.

AND SAY - THERE'LL BE ATOMIC WASHING MACHINES, REFRIGERATORS AND RADIOS! I'LL BET HAROLD ICKES IS BEHIND THIS SOMEWHERE!
YES PAUL, I THINK YOU'RE RIGHT. BUT HOW DID HE SELL THE DUPONTS ON SUCH A COMMUNISTIC IDEA?
ATOM OR NO ATOM - WE GOTTA SAVE THOSE ALUMINUM PLANTS!
LET ME KNOW IF THERE IS - BECAUSE I WANT THE CEMENT CONTRACT FOR LINING THOSE CANALS!
WITH PLUTONIUM IN YOUR GAS TANK, DO YOU SUPPOSE THERE'D BE A GOOD MARKET FOR TRUCKS ON MARS?
COLUMBIA RIVER
INDUSTRIAL POWER POSSIBILITIES OF HANFORD
KENWORTH TRUCKS
PACIFIC LIGHT & POWER
PUGET SOUND LIGHT & POWER
LIGHT METALS COMMITTEE
REYNOLDS
GWAN! THERE ISN'T ANY SUBSTITUTE FOR ELECTRICITY - BESIDES YOU CAN'T IRRIGATE ORCHARDS WITH ATOMS!
WONDER IF I COULD FIGURE OUT A GOOD STOKER PATENT FOR ATOMIC POWER PLANTS? THAT WOULD BE SOMETHING!!
BONNEVILLE POWER
IRON FIREMAN

In order to release items essential to the speedy reconversion of all lines of industry and business, Calship is placing on sale immediately all surplus materials, equipment, tools and facilities used in its wartime construction of ships.

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STEEL—STRUCTURAL SHAPES & PLATES
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CALIFORNIA SHIPBUILDING CORPORATION

Have You Heard the Latest About OVERHEAD CRANES?

● Progress has been rapid during the past few years. And if you haven't kept tab on the important P&H advancements, be sure to investigate them before you buy your next crane.

Designs have changed — all welded girder construction has resulted in greater structural strength with substantial rate reduction — lower wheel loads. Operation is speeded up, made easier, safer, with improved electrical equipment designed specifically for crane service. Overload relays have replaced fuses to eliminate service interruptions. Maintenance problems have been reduced to a new minimum.

These and other refinements will mean substantial savings to the user in the long life of an overhead crane. And they reaffirm P&H's unquestioned leadership. To be sure of the highest possible return on your Crane investment, be sure to check with P&H.

P&H

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Milwaukee 14, Wisconsin

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Established in 1884

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REVERE Welded Steel Tube can be had either in straight lengths, or partly or completely pre-fabricated. Our tube-working equipment is highly specialized, and customers frequently find that it effects appreciable savings in costs.

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Aircraft Parts
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B Beauty Shop Equipment
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C Condensers
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D Display Stands
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E Elevator Parts
Exhaust Tubes

Ferrules
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G Gravity Carrier Systems
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Oiler Tubes

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P Playground Equipment
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T Transformers
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V Vacuum Cleaner Parts

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X X-Ray Equipment

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Executive Offices: 230 Park Ave., New York 17, N.Y.

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This night-shift is getting to be a habit

Here it is night and *still* we're not finished. Overtime, all the time.

This *is* getting to be a habit.

Blame overtime on too much rush business, too many out of town, too much flu, too much new help. But the fact remains that lights burning after hours, and coffee and hamburgers sent in, are usually signs of inefficiency somewhere along the line. Something's wrong.

A weakness in business forms is often part and parcel of the trouble. Moore Business Forms, Inc., designs and prints business forms of every description for thousands of businesses, large and small. Net result is less error, less confusion—and savings that mount up to real figures.

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Moore Business Forms, Inc., consists of companies long under Moore ownership, now also under the Moore name. Get in touch with headquarters of your nearest Moore division, as listed below, or its local office. *Moore stands ready to supply you with everything from a simple sales book to the most intricate multiple-copy form.*

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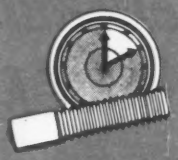
National Sales Check Book Co., Ltd., Montreal

MOORE BUSINESS FORMS, INC.

ADV. BY H. W. AYER

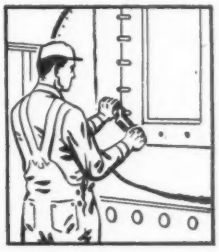
How many studs can you install in 10 minutes?



THE OLD WAY

DRILL HOLES
(after layout and center punching)

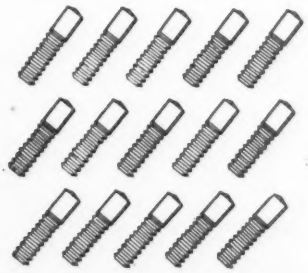
TAP THREADS
(a slow hand operation on jobs like this)



INSTALL STUDS
(a third hand operation in this slow, costly method)

= 1

THE NELSON WAY



= 15

100 TO 200 STUD WELDS PER HOUR can be made manually. NELSON flux-filled studs are available from 1/8" to 3/4" in diameter, and up to 8" in length in both standard and a wide variety of special types.

NELSON manual welders are as portable as an electric drill; precision NELSON production-model welders are available with capacities of 20 or more studs per minute.

GET THE FACTS—write or wire for complete information NOW!

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Representing
Nelson Stud Welding Corp.
Lorain, Ohio

TRADEMARK

Nelson Specialty Welding Equipment Corporation
San Leandro, California

OTHER NELSON FLUX-FILLED STUDS

Felt Bats ride light and easy on Link-Belt Overhead Trolley Conveyors

Trolleys: Link-Belt makes many sizes and types, with ball, roller, or self-lubricating bronze bearings, plain or flanged wheels. *Track:* Double-angle, I-beam, or double T-rail. *Chain:* a variety of types and weights, to meet any service requirement.

Drives: Photo shows booster with variable speed pulley on The Felters Company conveyor. Speeds from 25 to 75 ft. per min., can handle from 100 to 321 bats per hour. *Other L-B Drives* on corners or tangents, constant or variable speed with PIV gear or variable pulley.

Note these details of L-B Overhead Trolley Conveyor at The Felters Company

1. Four-inch I-beam rail, hung from ceiling and braced to prevent vibration and swaying.
2. Ball-bearing trolleys, set at 40-inch intervals, carry chain smoothly under rail.
3. "Rivetless" drop-forged steel endless chain, 462 feet long, moves at speeds from 25 to 75 ft. per min. by variable speed drives.
4. Roller turn, typical method for long-radius turns. Assures smooth, easy operation.
5. Special carriers for felt bats, designed and made by Link-Belt for this installation. Carriers hang on two chains from eyes on trolleys. Weight is on rail, not on conveyor chain.

AT Felt Manufacturing Company men used to carry 90-lb. felt bats from carding machines to hardeners and stock rooms. A Link-Belt Overhead Trolley Conveyor now eliminates this heavy labor. Bats are hooked onto special carriers on the first floor, or at one of two loading points on the second floor. They ride the conveyor to the stock room, where they are unloaded, and either lowered to the hardening room below, or placed in stock.

Link-Belt Overhead Trolley Conveyors carry all kinds of parts, equipment, supplies . . . light materials or heavy . . . on long or short runs . . . up, down, around turns. They carry parts to assembly lines, act as the assembly line conveyor, and deliver finished work to stock or shipping rooms.

Link-Belt makes a wide variety of conveyors and Link-Belt Engineers offer unbiased advice, helpful service in planning handling methods, in selecting equipment. Call the nearest Link-Belt office for a Materials Handling Engineer. He'll come as soon as he can. In the meantime, there are helpful suggestions and ideas on overhead conveyor applications in booklet No. 1630 . . . yours for the asking . . .

LINK-BELT COMPANY

PACIFIC DIVISION

Plants at San Francisco 24, 400 Paul Ave.; Los Angeles 33, 361 S. Anderson St.; Seattle 4, 820 First Ave. S. Offices and Warehouses: Portland 9, 1637 N.W. 14th St.; Spokane 8, 151 Lincoln St.; Oakland 7, 1025 Harrison St.

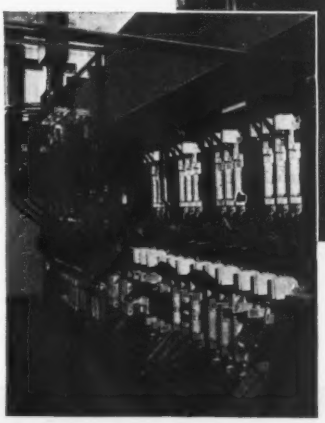
9919-P

SQUARE D and the Nation's Industries.

America's vast system of Railroad networks look to SQUARE D for exacting ELECTRICAL performance

● Keynoting the entire Railway Industry is *exactness.* And that's why you'll find Square D Electrical Control Equipment in use in every major railway terminal.

Railway executives know that they can depend on Square D Electrical equipment for keeping their schedules up to the second. *They know that Square D is the symbol of electrical control perfectly applied;* that the name vouches for correct design, sound engineering, precise workmanship and trouble-free operation.



Front and rear views of Square D Main Distribution Switch Board used by Railway Systems the nation over.

No matter in what category or industry your electrical problems may fall, a call to your nearest Square D Field Engineer or Distributor will bring expert counsel and assistance in solving your immediate and long range problems.

SQUARE D COMPANY

LOS ANGELES • DETROIT • MILWAUKEE

THE **right** SIZE!

. . . NOT TOO **big**

. . . AND NOT TOO **small**

Your advertising agency must be exactly the *right size* to produce maximum sales results for your particular promotion job. Campaigns have been lost because the advertising agency assigned to the task was too big, too busy, to give adequate service—or so small it could not command full agency facilities.

Tailored *just right* to suit growing West Coast industries, The McCarty Company invites your inspection of its record: 26 years' experience in increasing clients' sales and helping outstanding industries of the West Coast grow larger . . . excellent financial rating . . . *planned* advertising campaigns directed by technical men, trained in the field . . . first-class production, art, copy, research and market analysis. The McCarty Company has five offices, sixty men and women, trained and ready to serve you. Put these facilities to work for you now. The time is ripe.

THE McCARTY COMPANY
Established 1919
Advertising

1206 Maple Ave., Los Angeles 15 ★ 116 New Montgomery St., San Francisco 5
2217 Cedar Springs, Dallas 1 ★ Vance Bldg., Seattle 1 ★ 2205 Koppers Bldg., Pittsburgh 19

HOW *Wisely* MOTOR TRUCKS ARE BOUGHT WILL AFFECT HOW *Widely* THEY ARE USED

Photo courtesy—Langendorf United Bakeries

Motor transport has come of age during this war. The way it has measured up to its wartime assignments assures it of an expanded role in our postwar economy.

It stands to reason that to maintain a satisfactory level of national income and jobs, we are going to have to move more goods than ever before in our peacetime history. This will call for the highest development and best use of all our forms of transportation, including trucks—and, in a sense, *especially* trucks, because all other forms require trucks as an adjunct to their own services.

To meet this challenge of expanded need, White is developing trucks of maximum efficiency—*specifically designed for the particular work for which they are intended.* In this way, the vehicle becomes an exact tool for the job at hand and obviously more efficient and economical.

If motor transportation is to measure up to its full possibilities postwar, all truck owners must be convinced of the soundness of this approach to their problems of proper truck selection and operation.

White earnestly believes that motor transportation's best interests for the future lie in this direction.

THE WHITE MOTOR COMPANY • CLEVELAND

Pacific Coast Branches and Dealers in all the important cities

White

FOR MORE THAN 45 YEARS THE GREATEST NAME IN TRUCKS

We took the JARS out of Jar Conveyors!

① BREAKAGE AND SPILLAGE headaches have been cured by the chain belt conveyor that travels as smoothly as a table top . . . Rex Table Top. Jerky, bumpy conveyors that jarred and broke containers are a thing of the past.

② FOR EXAMPLE, the jars that ride on this Rex Table Top conveyor chain glide smoothly along, never jamming, never breaking or spilling. Perfectly flat, with bevel-edged links, Table Top never catches or "trips" containers at transfer points . . . slides freely from under blocked containers, preventing pile-ups, spillage and breakage.

③ SIMPLE DESIGN IS THE SECRET of Table Top's success. It's a one-piece platform link with a simple pin connection. Fewer parts mean less chance for chain trouble, greater steadiness. There are no attachments to break loose or "wobble." It stays cleaner! There are no pockets to catch and hold dirt. Driving sprockets engage the full width of the hinged joint for smooth action, greater bearing area, and long life.

* * *

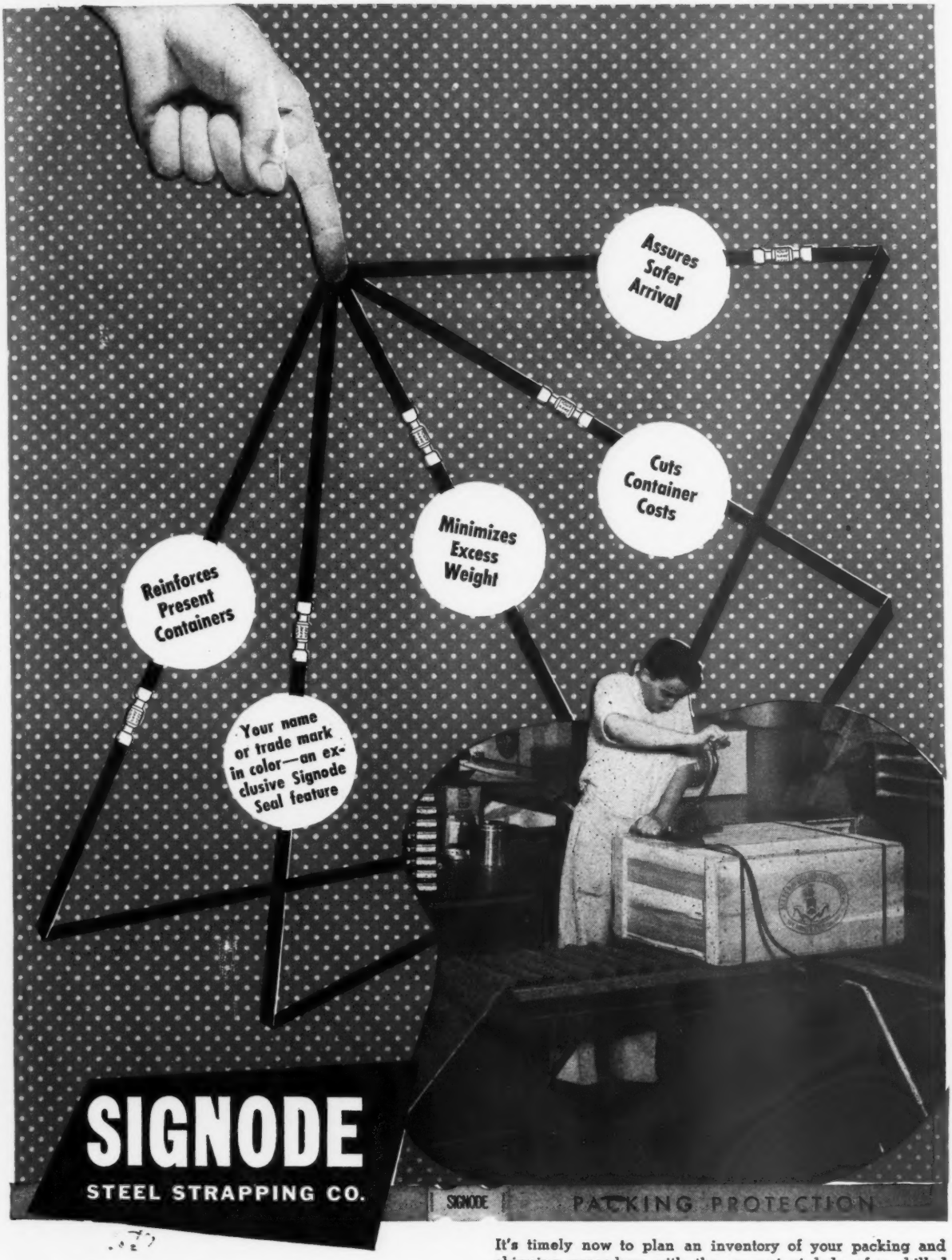
Rex Table Top is the answer to any problem involving the conveying of bottles, jars or cans. The Rex Man will help you with your chain belt application problems. For complete information on Rex Table Top, write for your copy of Bulletin No. 464. Chain Belt Company, 1723 West Bruce Street, Milwaukee 4, Wisconsin.

REX **CHAIN BELTS**

Manufactured in every available type for the positive transmission of power, timing of operations and conveying of materials

CHAIN BELT COMPANY OF MILWAUKEE

Rex Chain Belt and Transmission Division, Rex Conveyor and Process Equipment Division, Milwaukee 4, Wisconsin • Baldwin-Duckworth Division, Springfield 2, Massachusetts



EXPERIENCE POINTS out that everybody profits when you protect your shipments with Signode Steel Strapping—a method applicable to practically all types of containers, or shipping units, from small, light boxes to large bundled or palletized loads of heavy products.

It's timely now to plan an inventory of your packing and shipping procedure with the competent help of a skilled Signode Packaging and Carloading Engineer.

SIGNODE STEEL STRAPPING CO.

GENERAL OFFICES: 2615 N. Western Ave., Chicago 47, Ill.; 458 Bryant St., San Francisco 7, California; 441 Seaton, Los Angeles 13, California; 1021 Fourth Ave., S., Seattle 4, Washington.

GOVERNMENT SURPLUS PAINTS FOR IMMEDIATE DELIVERY ★

★ All items listed are in good condition. Prices shown are F.O.B. location of the paints, most of which are stored in San Francisco, Sacramento or Stockton. Inspection may be arranged.

OLEORESINOUS ENAMEL. Med. Chrome Yellow. 9,000 gals. In ½ gal. cans, 24 to ctn.
Per Quart..... **80c**

MACHINERY ENAMEL. Medium Gray. 3,000 gals. In 5 gal. kegs.
Per Gallon..... **$2.30**

STENCIL BLACK PAINT. 775 gals. In 5 gal. cans in cartons.
Per Gallon..... **$1.10**

WHITE LEAD BASE PAINT. Semi-paste. 3,000 gals. In gal. cans.
Per Gallon..... **$3.10**

WHITE ENAMEL INTERIOR GLOSS. 2,500 gals. In quart cans. 24 qts. to case.
Per Gallon..... **$2.60**

WHITE ENAMEL OLEORESINOUS Eggshell finish, quick-drying. In quarts, 24 to case.
Per Gallon..... **$3.20**

READY MIXED OIL PAINT. Sea Blue. 420 gals. in 5 gal. cans.
Per Gallon..... **65c**

READY MIXED OIL PAINT. Haze Gray. 640 gals. In 5 gal. cans.
Per Gallon..... **65c**

OLEORESINOUS EMULSIFIABLE OIL PAINT. Field Drab. 27,070 gals. In 5 gal. cans.
Per Gallon..... **65c**

READY MIXED OIL PAINT. Black. 13,365 gals. In 5 gal. cans.
Per Gallon..... **65c**

OLEORESINOUS EMULSIFIABLE PAINT. Dark Green. 8,000 gals. In 5 gal. cans.
Per Gallon..... **65c**

OLEORESINOUS EMULSIFIABLE PAINT. Olive Drab. 3,000 gals. In 5 gal. cans.
Per Gallon..... **65c**

READY MIXED OIL PAINT. Loam 6,950 gals. In 5 gal. cans.
Per Gallon..... **65c**

MARINE PAINT. Zinc Chromate Primer. 6,935 gallons. In 5 gal. kegs.
Per Gallon..... **$2.40**

MARINE PAINT OLEORESINOUS GLOSS. Light Gray. 6,640 gals. In 5 gal. steel kegs.
Per Gallon..... **$2.40**

MARINE TOPSIDE PAINT. Medium Chrome Green. 3,250 gals. In 5 gal. steel kegs.
Per Gallon..... **$2.00**

SPECIAL!

COLD WATER PAINT DRY

White, Earth Red,
Burnt Sienna, Burnt Umber,
Chrome Oxide Green,
Iron Oxide Red, Earth Yellow

Large quantities, In 5 lb. and 10 lb. containers. In 500 lb. lots, per pound..... **3c**

Minimum sales 96-100 gallons; on all 65c items, minimum sale is 200 gallons, any one color. No further discount allowed. Credit terms may be arranged. All items subject to prior sale or withdrawal. Buying preference to veterans.

WAR ASSETS CORPORATION

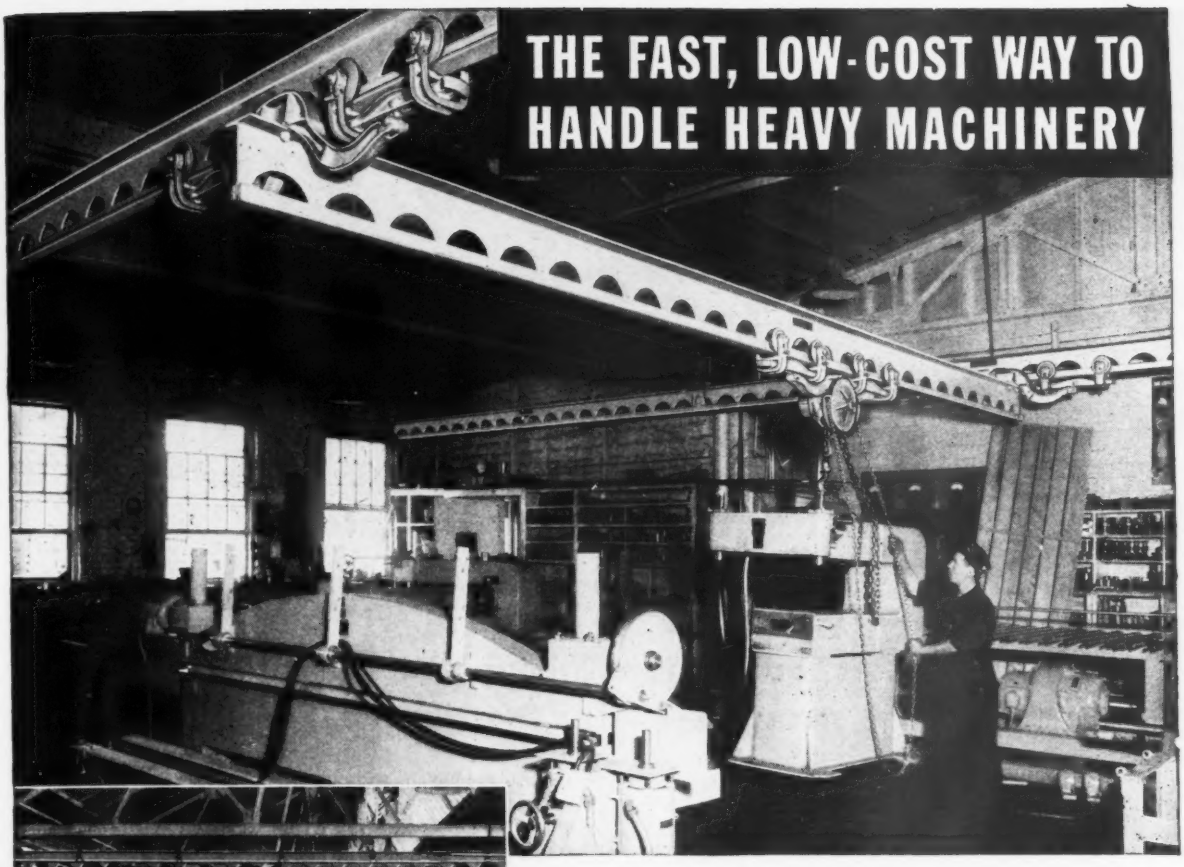
(A SUBSIDIARY OF RECONSTRUCTION FINANCE CORPORATION)

A Disposal Agency Designated by the Surplus Property Administration . . . for Surplus Producers' and Capital Goods, Aircraft and Plants, Formerly Handled by Reconstruction Finance Corporation . . . and for Surplus Consumer Goods Formerly Handled by United States Department of Commerce.

200 Bush Street, San Francisco 4, California. EXbrook 8321

WESTERN OFFICES: Boston Building, DENVER, Alpine 0415 • Power Block, HELENA, Phone 481 • Pacific Mutual Bldg., LOS ANGELES, Michigan 6321 • Pittock Block, PORTLAND, ATwater 6401 • Dooly Bldg., SALT LAKE CITY, 5-7503 Dexter Horton Bldg., SEATTLE, Main 1080 • Columbia Bldg., SPOKANE, Main 5111

THE FAST, LOW-COST WAY TO HANDLE HEAVY MACHINERY



Hand-propelled crane with chain hoist handling heavy steel frame for veneer machine.

Hand-propelled crane with electric push-button operated hoist moving a diesel engine.

IF HARD back-breaking work is required on the part of several men to move a machine in your plant, you should seriously consider Cleveland Tramrail cranes.

A heavy engine or machine-tool can be quickly and safely moved by one or two men with a smooth running Cleveland Tramrail crane. Shipping boxes or crates are easily packed. Work that requires *hours* can often be done in *minutes* with an overhead crane.

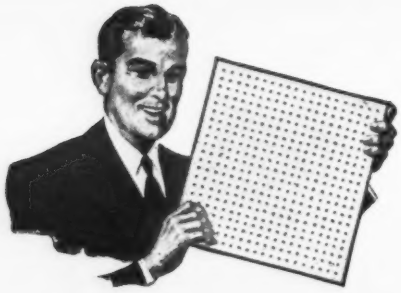
Despite the great advantages Cranes provide, they are low in price. In fact, many completely pay for themselves in only a few months time. Cleveland Tramrail cranes are built in various types for manual and electric operation.

GET THIS BOOK!

BOOKLET No. 2008. Packed with valuable information. Profusely illustrated. Write for free copy.

CLEVELAND TRAMRAIL DIVISION
THE CLEVELAND CRANE & ENGINEERING CO.
1197 EAST 283RD ST. WICKLIFFE, OHIO.

CLEVELAND TRAMRAIL
OVERHEAD MATERIALS HANDLING EQUIPMENT



OVER 1000 YEARS

of Combined Acoustical Experience

...At Your Service Through Your Local Acousti-Celotex Distributor

MORE THAN 1000 years of combined experience, gained in over 100,000 installations—this is the great reservoir of practical knowledge available to you *only* through the Acousti-Celotex* Distributor Organization.

This knowledge has been gained in good company. For the nationwide Ascouti-Celotex group has collaborated with thousands of firms in effecting solutions to noise quieting problems.

Every day the men of this organization are helping companies solve such problems as:

- How to diagnose acoustical and noise quieting difficulties...
- How to reduce distracting noise in offices and factories to a gentle hush...
- How to design architecturally for optimum acoustics...
- How to be sure of mechanical perfection in the proper acoustical material and its application...
- How to make sure of the acoustical installation's perfect appearance and continued satisfactory performance through the years.

Every man in this nationwide organization is hand picked. He is thoroughly trained in sound-conditioning practice. As a result, when you turn a job over to him, you know it will be trouble-free.

No matter how much or how little assistance you may need, your local Acousti-Celotex Distributor is willing and able to help you without obligation. This extra service he offers you in no way affects his ability to compete on the smallest or the largest job you may have. That service is the unwritten *plus value* that goes with every specification for Acousti-Celotex.

Feel free to call upon the Acousti-Celotex Distributor nearest you. A phone call or a note to him will bring a trained sound-conditioning expert to you. Send for your copy of "Sound Conditioning for Office Workers," or "Less Noise in Factory and Shop."

• • •

Distributors of Acousti-Celotex in the West

ASBESTOS SUPPLY COMPANIES
SEATTLE • TACOMA • PORTLAND • SPOKANE • MISSOULA

JAY GREAR CORPORATION
ALBUQUERQUE • EL PASO

J. B. MATZ, SPECIALTY CONTRACTOR
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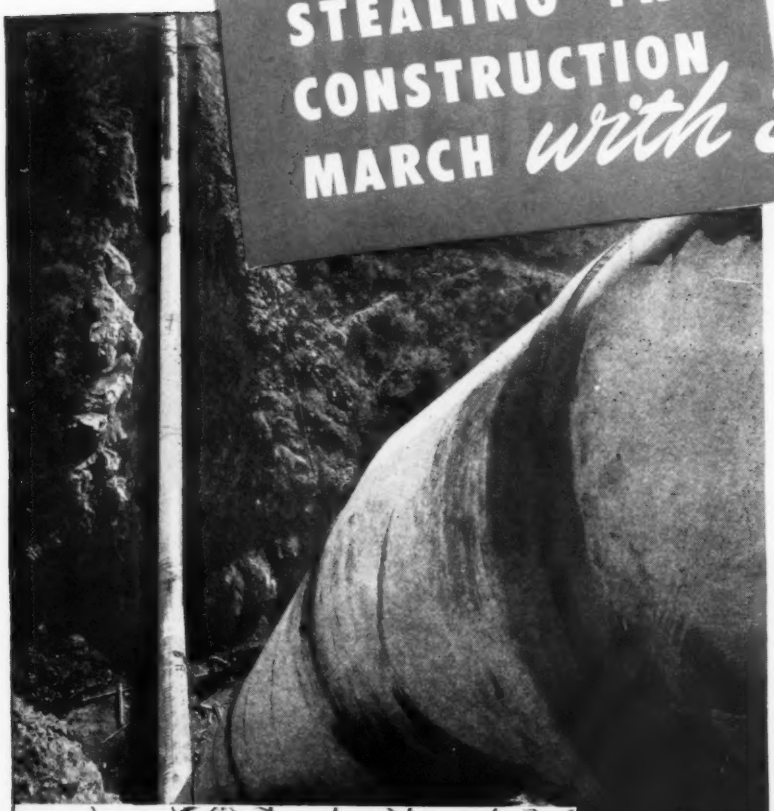
LAUREN BURT, INC.
FORMERLY ROCKY MOUNTAIN ACOUSTICAL CO.
DENVER • SALT LAKE CITY

THE HAROLD E. SHUGART CO.
LOS ANGELES

WESTERN ASBESTOS COMPANY
SAN FRANCISCO • OAKLAND • SACRAMENTO

Sound Conditioning with
ACOUSTI-CELOTEX
REG. U. S. PAT. OFF.
** Perforated Fibre Tile* SINCE 1925

STEALING THE CONSTRUCTION MARCH *with steel!*



For endurance, potential strength in the building of pressure vessels, pipe lines, tanks, etc., steel has stolen the march in essential industry. Without it, much of the essential industrial growth of the past few years would have been impossible. Steel is a builder of industry.

Western Pipe & Steel for over 40 years has played a dominant part in the building of Western Industry. Municipal water facilities, penstocks, and modern refineries are only a few of the projects which we have fabricated and built.

When you plan steel construction, we will be glad to talk with you concerning your problems. Just write or call our nearest office

WESTERN BUILT PRODUCTS INCLUDE:

ABSORBERS
AGITATORS
BOILERS
CASINGS
OIL AND WATER
CULVERTS
GAS CLEANERS
GAS SEPARATORS
PIPE
OIL
GAS & WATER
PENSTOCKS, STEEL
REFINERY EQUIPMENT
TANKS
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Western PIPE & STEEL COMPANY OF CALIFORNIA

Fabricators and Erectors

3717 Santa Fe Avenue
Box 2015, Terminal Annex
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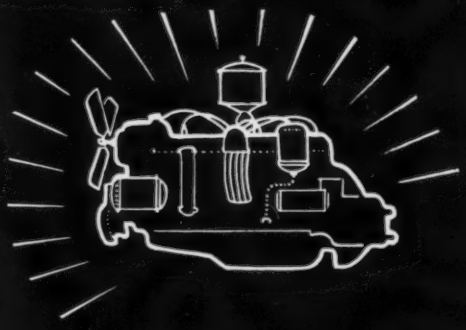
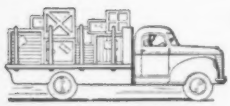
San Francisco 6
California

Plants and Offices: FRESNO, BAKERSFIELD, TAFT, CALIFORNIA AND PHOENIX, ARIZONA

"assembled" for cleaner engines



The NEW TYDOL Motor Oil



• *Increased stability makes oil last longer. Anti-wear characteristics prolong the life of motors. Anti-corrosion factors protect bearings. Anti-foaming quality gives better performance under stress conditions.*

The improved Tydol is available *now* for use in all automotive equipment. It is better than pre-war Tydol, its formula having been enhanced by war developments. Its balanced blend of carefully selected base stocks is combined with a unique multi-function additive, for cleaner, carbon-free engines. Phone *today* for your initial order of Tydol, the *additive* motor oil.

Listen to Associated Basketball Sportcasts

Correct Lubrication is Machinery's Most Vital Need

TIDE WATER ASSOCIATED OIL COMPANY

Spotlight on the NEWS

WESTERN INDUSTRY
FOR FEBRUARY, 1946

VOLUME XI NUMBER 2

Plant Discipline

Plant discipline is maintained in order to get efficiency but often it happens that in enforcing the discipline efficiency is lost in the method used. In recognition of this executives at Ryan Aeronautical Company's plant in San Diego have evolved a way of dealing with infractions of plant rules that might well be adopted elsewhere. It stems from the old Anglo-Saxon principle of "trial by jury." For more on this subject turn to the lead article (pages 27-30).

Customer Criticism

Depending on how early he can get it, customer criticism is well nigh invaluable to the manufacturer. The reason is that he can modify his product quickly to meet the demands of the market. How to get customer criticism quickly is told on page 39.

If There's Another War?

Because of the ingenuity of Western manufacturers who had been "discovered" by the Ordnance Department's one-man survey before the war, (pages 40-41) the West was able to deliver a terrific amount of war goods. Maybe there will be another war. If it comes will Ordnance have been able to make the proper kind of a survey of Western plants?

Atomic Power Sources

Everyone is interested in the possibilities of atomic power in the West. After all, the only true atomic power plant the United States has is the one at Hanford, Washington. Wide as the interest is, however, those men who are already engaged in the manufacture and sale of electrical energy should have an even greater interest in what the atom holds for their future. Though there is no cause for their being immediately alarmed, they, along with others, might well turn to page 35.

Westerners on Wings

Arrival of the Air Age for the little fellow is clearly shown in the marketing methods now being used for the sale of aircraft, both new and used, by Eddie Meyer in Los Angeles. This, and the production of the "Bumble-Bee," are described on pages 33-34.

Maintenance Plastics

The task of maintaining a fleet of nearly a thousand ships is one of the biggest ever confronting maintenance men. To deal with it several new techniques are used, including one that involves the use of hot plastic paint that deals death to barnacles and other organisms (pages 42-43).

Fishing From the Sky

Spotting tuna from the sky is now enabling the captains of the tuna clippers to send their craft on the most direct route after the chicken of the sea (page 34). The idea isn't exactly new even though the practical application of it is. In any event the future for what many people say is the most tender fish in the sea is going to look tougher and tougher.

Boring Mine Shafts

Probably the most difficult problem in mining is getting where you want to go —down. A method of boring shafts, (pages 43-44) evolved a few years ago but not widely adopted because of the war, will speed the task considerably in the years ahead.

Counseling Service

Westerners going to Washington on business with the government should realize one thing, at least, according to Arnold Kruckman, our Washington editor, and that is that the Capital shies away from the politically inept. For the story of how some German-Americans from the West Coast muffed their plan for relief for Germany turn to page 45.

Darts Fly Southward

Indicative of the wealth of the South American market is the fact that South Americans are now going in for such things as magnetic dart games and lawn sprinklers. When they buy such things from Western plants it is evident that Westerners can sell many other different types of merchandise to our hemispherical cousins. To see what some Westerners are doing in this matter turn to page 32.

Cartoon Series

First in a series, the cartoon (page 7) depicting the sphinx-like silence surrounding the present and future of the atomic bomb plant at Hanford, points up some of the lighter sides of what is the West's, as well as the country's, greatest story of 1945. As a matter of fact the story may be the biggest of 1946 as well.

Another Association

That is what a group of California manufacturers have formed (page 44), but according to the advance publicity of the group it is to be more than just another association. High on the list of the announced objectives of the group is the promotion of solidarity between the Northern and Southern parts of California.

Here and There

In Southern California there is a tremendous output of frying pans, page 60. Several Eastern firms are planning to move into the Columbia Empire, page 64, and throughout the West, as shown in The West on its Way, a whole host of industrial activities are rapidly getting under way. For those interested in the statistical picture of the West's economy and industry, turn to pages 76-78. News about those who sell industrial equipment and materials, about new equipment and about new literature of interest to those in industry is contained respectively on pages 92-93, 94-96 and 97-98.

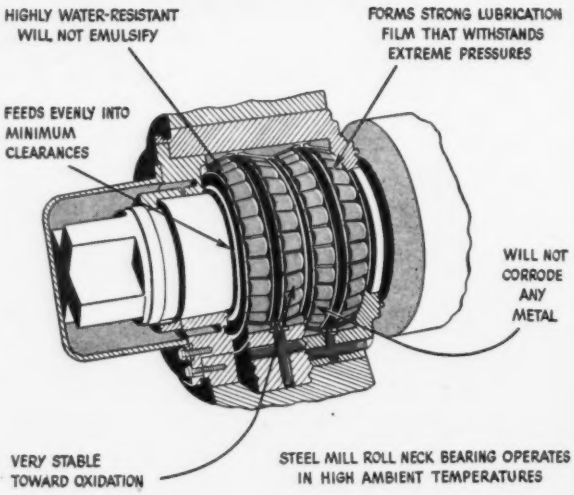
STANDARD ENGINEERS NOTEBOOK

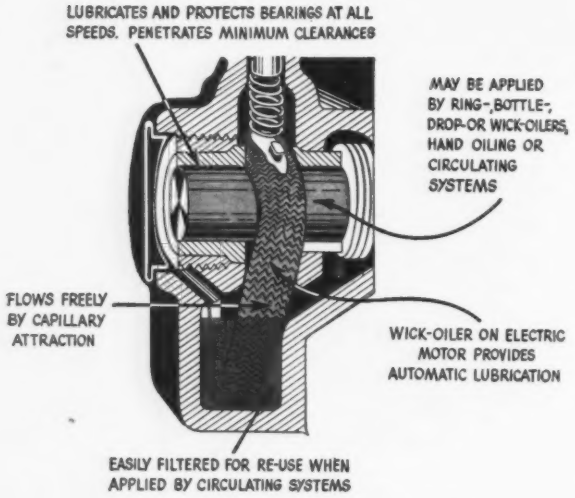
Pale engine oils reduce wear on plain bearings

Specially refined by the solvent process, Calol Engine Oils will meet all general lubrication conditions in mills and factories. They are straight mineral oils, pale in color and exceptionally stable in use. They have low pour points which assures a full flow of oil to bearings in cold weather.

Calol Engine Oils may be applied by all types of oilers and the heavier grades may be used in circulating systems in which oil is filtered and re-used.

There are three grades of Calol Engine Oils: 5, extremely light in body, is recommended for high-speed spindles and ring-oiled electric motors in sub-zero temperatures; 8 and 10 are recommended for bearings on steam engines, generators, motors and other high grade machinery lubricated by ring-, bottle-, drop-feed-, wick-feed oilers, or by hand.


HIGHLY WATER-RESISTANT WILL NOT EMULSIFY
FORMS STRONG LUBRICATION FILM THAT WITHSTANDS EXTREME PRESSURES
FEEDS EVENLY INTO MINIMUM CLEARANCES
WILL NOT CORRODE ANY METAL
VERY STABLE TOWARD OXIDATION
STEEL MILL ROLL NECK BEARING OPERATES IN HIGH AMBIENT TEMPERATURES


LUBRICATES AND PROTECTS BEARINGS AT ALL SPEEDS. PENETRATES MINIMUM CLEARANCES
MAY BE APPLIED BY RING-, BOTTLE-, DROP-OR WICK-OILERS, HAND OILING OR CIRCULATING SYSTEMS
FLOWS FREELY BY CAPILLARY ATTRACTION
WICK-OILER ON ELECTRIC MOTOR PROVIDES AUTOMATIC LUBRICATION
EASILY FILTERED FOR RE-USE WHEN APPLIED BY CIRCULATING SYSTEMS

Special grease carries heavy-duty loads

Wherever any type of heavy-duty, grease-lubricated ball or roller bearings are subjected to high temperatures, extreme pressures or moisture, Calol E. P. Roller Grease will solve the severe lubrication problems. Originally developed for steel mill operations, it is used with complete satisfaction in these mills on anti-friction roll neck bearings.

Calol E. P. Roller Grease is made from heavy bodied oil and special soap stocks wherein are incorporated extreme pressure additives. It is very cohesive and stable, lubricates satisfactorily in bearing operating temperatures up to 225° F. Its tough lubricant film withstands pressures far higher than other greases used on anti-friction bearings.

Fully moisture resistant, Calol E. P. Roller Grease resists oxidation, is non-corrosive to any bearing, and handles easily in grease pressure systems, even at low temperatures.

Standard Fuel and Lubricant Engineers are always at your service. They'll gladly give you expert help — make your maintenance job easier. Call your local Standard Representative or write Standard of California, 225 Bush St., San Francisco 20, California.

FOR EVERY JOB A **STANDARD OF CALIFORNIA** TEST-PROVED PRODUCT

• Above, an employee appears before the Discipline Control Board at Ryan Aeronautical Company for a hearing on his second infraction of a company rule. His supervisor is not allowed to dismiss or discipline him. Such actions hinge on the Board's findings. Through this method the company feels that it has been able to get the maximum amount of impartiality into handling discipline problems.

"TRIAL BY JURY" USED FOR PLANT DISCIPLINE PROBLEMS . . .

At Ryan Aeronautical Company Institution of a Discipline Control Board Has Made the Task of Maintaining Plant Discipline Easier

By E. A. MOORE
Airplane Manufacturing Manager
Ryan Aeronautical Company, San Diego, Cal.

THERE is one common denominator to all successful industrial plants of any size.

That is a characteristic of the working force which might be described as efficient orderliness in getting the job done. It is based upon the employees' understanding and acceptance of good work habits.

Good conduct of employees in manufacturing plants has always been a responsibility of the employer, and a prerequisite to the smooth functioning of the manufacturing departments.

For years industrial companies have developed rules and regulations to be complied with by employees within their plants. Common among these are safety rules and regulations. Not too much difficulty has been encountered here because to a large extent the mandatory requirements of insurance companies together with legislation by State and Federal governments has left no alternative.

Aside from safety rules, however, there are many rules and regulations which vary from plant to plant. Employees must check into the plant within certain time limits. This also goes for checking out. Some plants permit smoking, others do not. Employees must line up properly at the time clocks. There must be no running within the factory departmental areas. Employees are not permitted to wander throughout the factory, but must remain within their given work areas, etc.

The cooperation which the various companies receive from employees in their efforts to obtain a general betterment of employee conditions depends upon the intelligent application and effectiveness of reasonable rules. As an example, we can cite the instance of safety rules. The combination of insurance company requirements and both Federal and State governmental legislation has been far reaching in its effect within industry. Industrial acci-

dents per manhour have constantly been reduced during the last ten to twenty years. This lowering of industrial accidents is a result of the education of employees to a realization that accidents are caused by carelessness and do not just happen.

Safety, however, is only one phase of the regulations governing personal conduct which we must apply in our war plants today. Such matters as loafing or stalling on the job, malpractices in punching time clocks, tardiness and absenteeism, carelessness in performance of work, breakage of tools, pilferage, improper wearing of badges, etc., must be prevented by the substitution of good work habits which are based on logical rules.

You can't use authority as a force. The power to hire and fire loses its effectiveness in proportion to the difficulty of getting a replacement, and its exercise is always a last resort measure. Generally a large amount of money is invested in the employee in the form of special training which would be a total loss in the event of a permanent separation. Also, no rule can be successful unless it is clear and sensible in its application to the individual employee.

An examination of the picture often reveals that management is as much to blame as the worker when plant discipline is low. Many times unnecessary rules are established which merely weaken the will of the employee to comply. In some cases too little care is given to a study of the results obtained by rules or the employee's reaction to them.

Short Sighted Employers

The shortsighted employer would very often fire or cause the employee to quit for infractions of rules without ascertaining clearly the *cause*. Sometimes conditions have been allowed to exist in which personal dislike would create conditions causing relatively high turnover.

Generally, the employee's attitude is based upon his willingness to abide by a certain set of rules and regulations while in the employ of the company. This feeling, if clearly defined, will have much more effect upon his observance of company rules than the prospect of a one- or two-day lay-off for an infraction. Threats on the part of the foreman are usually of no avail because a day off does does not seriously embarrass the average employee financially.

In the same way that no set of laws has ever pleased all of the people, it is also true that no set of rules and plant regulations will meet with everyone's approval. The control of the employee in a manner which seriously restricts his natural desires is of course difficult. This is made even more so when industrial plants have any substantial percentage of new workers. This demands that the rules and regulations under which they work be equitable and reasonable.

Our experience has been that certain rules are sources of discontent to many em-

Ernest A. Moore

ployees. For example, the rule prohibiting smoking will usually result in discontent on the part of certain departments where there is no danger of fire. They see no hazard in their smoking. And it is difficult to put the point over to them that it is only "fair" that they not be permitted to smoke when the people in the neighboring department for sound and valid reasons are not permitted to smoke.

Rules such as this result in the employee not feeling conscience-bound or honor-bond to adhere to them. Continual infractions of one or two company rules lead to general discontent on the part of large numbers of employees. This general discontent usually is reflected in the attitude toward work and toward management. For some reason it appears that a human being, once he mars his otherwise good record, adopts the attitude that now that he has been in error in one respect, there does not seem to be much sense in trying to adhere to all other principles.

Foreman Responsibility

The responsibility for discipline in the factory belongs solely to the foremen and assistant foremen. They are the people who are directly in charge of the plant personnel, and are the people to whom the workers look for instruction, guidance and direction of all types.

Having attacked the discipline problem here at the Ryan Aeronautical Company to fix the responsibility on some particular person or group, we had our starting point for developing a sound organization for discipline control. In some large companies the plant protection force is responsible for discipline but actual practice has shown this to be rather unsuccessful. **This is by no means the realistic approach, and any system for maintaining order in a factory based on forced compliance by guards is doomed to failure from the start.**

The enforcement of shop discipline at the Ryan Aeronautical Company was made the responsibility of the Manufacturing Manager. In this way the responsibility could be passed on to the foremen and down to the assistant foremen in a direct line. The Manufacturing Manager was backed up by top management to the point that if it became necessary to maintain proper control in the plant he could take disciplinary action in other departments that did not come under his immediate supervision.

Discipline Control System

It now became clear that some system for organizing of discipline control had to be set up. The first step in this procedure was to examine what we in management could do to make it easier for the people to obey the rules and regulations than to disobey them. A general conference of all foremen and supervisors was held and in this conference some of the problems relative to poor control of employees were discussed. It developed that all companies have some rules which are either poorly conceived and administered or unenforceable. The unenforceable rule, as long as it remains on the books, acts against the whole discipline structure. As a result, the Ryan company rule book was reviewed, keeping the following things in mind.

1. **Be sure the things you expect of your people are reasonable.**
2. **Make instructions clear so that each employee knows exactly what is expected of him.**
3. **Make clear all of the reasons back of required standards of conduct and performance.**
4. **Avoid setting up too many rules and regulations.**
5. **Check the individual areas within the factory where the most trouble is being encountered.**

Better conditions have been easily obtained here at the Ryan Aeronautical Company by minor changes in factory layout, such as relocating the time clocks and redistribution of time cards, which avoided running and jamming at the time clocks when the whistle blew. Having set our own house in order, so to speak, we were ready to begin the job of obtaining discipline in the plant. And at this point we realized we had no set plan.

Unfortunately, as is so often true, a set of penalties sufficient to enforce the rules and regulations was not available. Also, the policing and attendant additional work of enforcing the discipline created some friction among the supervisors. This was due to the fact that many foremen felt that the employees would dislike them when they enforced discipline procedure. Some foremen frankly rebelled and tacitly refused to act as enforcement agents.

Citation Procedure

In spite of this, however, a measure of discipline control was instituted through a "citation procedure." It was agreed that any foreman or supervisor would issue a citation to any employee who was guilty of the infraction of any company rule. A suitable form was provided,

printed in books on a small pocket size paper, with the principal company rules listed on the face. This was carbon backed so the copies could be made in triplicate.

In issuing the citation the foreman merely noted the badge number of the employee, the offense and the time and date. The citation was then forwarded to the superintendent's office for clearance. This incidentally eliminated a great deal of objectionable book work for the foreman and helped very much in enlisting the foreman's cooperation.

How It Worked

Upon receipt of the citation form in the superintendent's office, the stenographer would fill in the employee's name and mail two copies to the employee's foreman or supervisor. The employee's foreman or supervisor would then call the employee in, discuss the citation with the employee, and note the action which he took on the bottom of the citation slip in the space provided. The employee who is warned is also required to sign the citation. This acknowledges the fact that he has been issued a citation and also that he is aware of the offense. The original copy would then be mailed back to the superintendent's office with the action noted on the copy. This is filed, while the original is forwarded to the employee's personnel file.

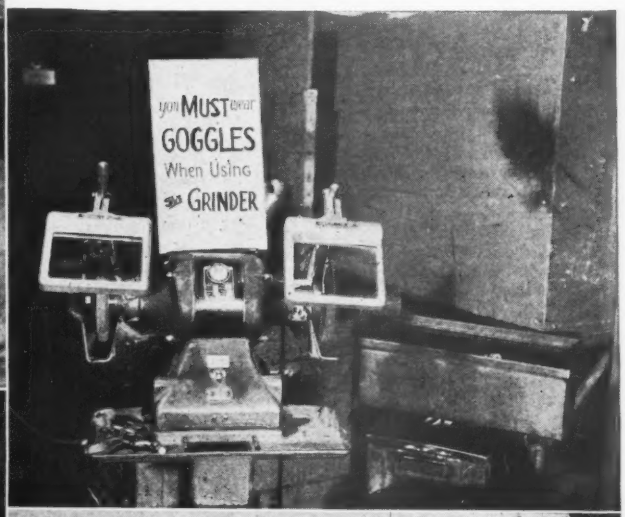
Originally the citations were set up to act only as a warning and a demerit which would be noted against the employee's record and used principally at times of promotion or merit increase review periods. Over a period of months the system operated rather haphazardly until the employees found that a citation, while it became a part of his record, was something not to be unduly worried about. It appeared that what was necessary was some form of punishment. But obviously it would be difficult to mete out punishment to employees unless the punishment was standardized and made uniform. This too was difficult if not almost impossible since all cases must be treated on their individual merits.

In addition to employees losing fear and respect for the citation procedure, it was not long before the foremen and assistant foremen lost interest in the citation procedure because of the contempt displayed by the employees. Regular drives were put on from time to time but were spasmodic and only served to add to the general discontent. Some foremen had by now ceased entirely to issue citations. All foremen were not equally conscientious and sold on having a well-disciplined working force.

The result of this was that the stricter foremen were issuing all of the citations. Finally, at a general discipline conference, it was mutually agreed that the citation procedure was unsuccessful and the problem

• **Above: If this bench is not cleaned up at the end of the day the worker will also be cited as is the man at the right for violation of the company's regulation regarding no smoking.**

• **Left: A new employee signs up for the "Employee's Manual." Below: For his not wearing goggles at this grinder he will receive a citation to the company's Discipline Control Board.**



was then taken by the foremen and tossed back to the management for a solution.

Trial By Jury

It was next decided to adopt a modified system of "trial by jury." This trial by jury, as it were, resulted in the formation of the Plant Discipline Control Board. A Discipline Board composed of one permanent chairman and four other members was set up. The membership of the first panel was composed of general foremen of tooling and production departments and the chief inspector. In this manner all departments operating in the factory were represented.

Staggered Terms

Each member of the board was asked to serve for six meetings. At the termination of his assignment, another supervisor was called in to take his place. By staggering the appointments to the board, at least four members of the board were older members with experience of a number of meetings in back of them so that there would never be more than two supervisors who were on the board for the first time.

In order to have this board function fairly and be in balance with other departments this basic policy was set up under which the board was required to operate:

1. A permanent chairman and full representation from the other departments working in the factory.
2. The citation procedure was to be used for infractions of company rules and a complete set of records was to be kept of all citations issued.
3. Definite meeting dates were decided upon and both first and second shift supervisors were required to attend the Discipline Board when their time came to serve.

Let us examine the normal procedure of citations and Discipline Board control: An employee violates a company rule and is issued a citation. The citation is made up in triplicate and forwarded to the superintendent's office. Here the citation is logged and numbered such as first, second, third offense, etc. Two of the three copies are then returned to the foreman of the employee involved. This is in the case of a first citation. Here the foreman has ample opportunity to discuss the matter fully in private, and is merely expected to warn the employee on his first infraction of company rules. One copy of the citation is filed in the employee's file and the other is forwarded to the superintendent's office for recording and filing.

Should the employee receive a "second citation," the citation is forwarded to the superintendent's office where it is logged and recorded. In the case of a second citation, copies are stamped "Second Citation" and two copies are then sent to the foreman with the notation to have the employee appear before the Discipline Control Board at the next meeting. The foreman then arranges for the required time for the employee to leave his department and attend the Discipline Board meeting.

RECORD OF CITATIONS ISSUED FOR PERIOD OF MARCH TO AUGUST, 1945

Citations Issued	*Total*
Smoking	256
Washing Before Whistle	181
Waiting Near Clock for Whistle	47
Quitting Before Whistle	31
Away From Work Place	24
Out of Department	5
At Lunch Counter Before Whistle	21
Running in Factory	14
Horseplay	1
Unnecessary Visiting	7
Late Return at Rest Period	8
Loafing	55
No Badge	5
Gambling	12
Incorrect Shoes	45
Incorrect Head Covering	12
Incorrect Clothing	4
Fixing Hair on Company Time	17
Pass	4
Speeding & Racing in Yard	7
Cutting in Line at Clock	6
Wrong Clock	4
Insubordination	1
Government Work	9
In Cafe Out of Hours	19
Total	805

System's Desirability

It is at this point that we might well examine the desirability of using this type of discipline control. The employee now realizes that he is no longer dealing with his own foreman, but instead is dealing with an impartial group of supervisors. This has a strong dampening effect on unruly employees. The period of waiting which is akin to that of a person waiting for his case to be called in court apparently is rather thought-provoking for the employee. When he is finally called before the Discipline Board, he is first given an opportunity to state his side of the case thoroughly and completely.

It has been found in many cases that employees have not read their rule books; that new employees have been given the wrong slant on company rules by older employees; that supervisors themselves have been incorrectly interpreting company rules, etc. After the case has been discussed fully by the supervisors and the employee, the Discipline Board then arrives at a decision. Decisions fall into this general pattern:

1. Second citation—Warning.
2. Third citation—Penalty ranging from one to two day lay-off without pay to discharge.

Citation Purposes

Second and third citations are for the violations of what may be termed minor rule infractions. In the case of major violations such as gambling, fighting, etc., the first citation is immediately *certified* to the Discipline Control Board. The findings of the Discipline Control Board are written up by the chairman for forwarding to the office of the Manufacturing Manager in the form of administrative action. He has the power to increase or decrease the penalty as he sees fit for the overall betterment and functioning of plant discipline control.

A complete set of records is kept by the chairman of the Discipline Board. Some of the information he obtains is as follows:

1. Total number of violations.
2. Frequency of violations.
3. Company rules most frequently broken.
4. Areas of greatest violation.
5. Comparison between shifts, etc.

These figures have been instrumental in uncovering a great many shop practices that have not always been conducive to good employee relations; for example: one woman employee was given a citation for loafing in the rest room. Investigation disclosed the fact that her supervisor permitted her extra time away from her bench because there was not the usual flow of work in the department. Another case of a woman found loitering in the rest room brought forth the information that her foreman had told her she was allowed ten minutes any time she went to the rest room.

Board's Success

The factual and statistical information compiled by the Discipline Control Board furnishes a clear cut overall picture of the conditions which exist. Some troublesome aspects of discipline control have been overcome by the inauguration of the Discipline Control Board. Supervisors have been cautioned repeatedly never to make even a minor threat. This has been most effective in that supervisors do not attempt the troublesome problem of trying to straighten an employee out except in the first citation. Here the supervisor has an excellent opportunity to do a good job, and failure on his part at this point gives management a second chance through the Discipline Control Board to find the reason for the difficulty.

Supervisors have been instructed never to dismiss employees for disciplinary reasons but to refer the matter to the Discipline Control Board. This eliminates the hot-headed supervisor as a factor and removes the dangerous actions which can be taken in anger. Charges of unfairness cannot be preferred. Old-fashioned or out of date rules are generally stricken from the rule book.

The Discipline Control Board has been extremely helpful in developing certain traits in our foremen. By serving as a member of the Discipline Board, the foreman who formerly did not cooperate in the writing of citations and the enforcement of discipline, is made much more discipline-minded when he acts as a member of the Discipline Control Board and sees the problems with which other supervisors are faced. Membership on the Discipline Board is in itself a short course in good employee relationship.

WHEAT SYRUP AT WENATCHEE

• To be used on pancakes, for canning and for fountain flavorings, syrup is now being produced from wheat at the Northwest Chemurgy Cooperative plant at Wenatchee, Washington. So far the plant is the only one of its kind in the United States, but others, beginning at The Dalles, will soon be constructed. The business owes its origin to J. Lifszyc, plant chemical specialist, a Polish Jew who escaped from Poland via Lithuania, Russia and Japan. Production at the plant is 90 to 100 barrels of glucose a day which, in turn, is converted into nearly a like amount of syrup.

• Upper left: Wheat is unloaded from freight cars on its way to plant extractors which separate starch. Chaff is sold as feed.

• Upper right: Wheat liquid, piped from large vats, pours into flotation tables for separation of protein. Lower left: J. Lifszyc, above, H. P. Carstensen, K. Van Etten shown watching starch as it solidifies.

• Lower right: Clear dextrose syrup pours from pipe into the barrels at the end of the plant's production line.

Even Dart Games Are Now Selling in South America

NOT even in the piping days of peace would lawn sprinklers and magnetic dart games be thought of as articles for foreign trade. And today with the other countries of the world striving either to rebuild their war-shattered economies or, as in the case of those of South America, to industrialize themselves, it seems even more extraordinary that there should be a demand for them overseas.

There is a demand for them, however, as the Oceanic Export Company of San Francisco discovered in advising its commodity-hungry agents in South America that they might try selling some of these until sources could be developed for the articles more commonly sold in foreign trade. Furthermore, the demand isn't any puny thing. Sales developments in the past three months definitely point to a healthy, growing business for both commodities each of which happens to be manufactured on the West Coast.

But items for the rumpus rooms of Rio and sprinklers for the lawns of Buenos Aires are by no means the only things which Oceanic has been able to find in Western plants as they lumberingly change over from war production to that of peace. Lately it has begun to ship electro spray guns for dealing death to insects that may slip into houses from the well watered lawns of South American homes. Sales are also being made of pneumatic guns, a device used for unstopping plumbing in houses whose owners have felt the impact of plumbing problems during the war just as keenly as householders in North America, and motorists are buying automotive jacks to replace those worn out in recent years.

Oakland Firm Exports

Though the market for all these commodities has been building up for nearly half a decade, only since shortly before the end of the war when Western manufacturers found themselves able to resume their production have shipments got under way. One firm, however, the Winslow Engineering Company of Oakland, was able to enter the Latin American market about a year earlier.

The Oakland firm produces filters for almost every automotive and industrial need. It has long been engaged in a business in which it turned out filters and replacement elements for any kind of an engine from that used to power the smallest air compressor to the huge marine engines used to send a large ship through the water. As a result of the war, mass production facilities were greatly expanded.

As the war settled down into its final course of victories the company found itself with a production capacity large enough to enable it to divert a greater part of its increased production to other than military or naval use. With the federal government anxious to allot a predetermined amount of goods to Latin American countries for purposes of high policy, it was comparatively easy for the firm to send part of its production into the Latin American market. As a consequence Winslow filters began to show up on Mexican commercial vehicles, industrial equipment and automobiles belonging to the republic's rapidly increasing middle class. Americans going below the border for a holiday found themselves able to get a filter or replacement element that was fully as effective as that they were used to at home.

Sales Expansion

Gradually sales began to creep farther down the hemisphere with the result that before the first year was done the Winslow company became acutely conscious of the fact it had found a new market which might be able to absorb a substantial quantity of its production during the not-so-boom years of peace that were rapidly approaching.

Realizing that sales under the then current conditions no more justified a sweepingly optimistic impression of the market than the proverbial appearance of a single swallow foretells the coming of summer, the organization went into a huddle to come out with the idea that a survey should be made of the whole Latin American market with a view to finding out just what the chances were for its products during peacetime. Accordingly, Oceanic was called in to do the job.

Because Oceanic feels that it has more than just a foothold in the field of surveying foreign areas for trade purposes it is somewhat reticent about divulging the exact techniques used. In any event the survey involved the sampling of hundreds of prospective dealers throughout the market as to their attitudes towards handling the Winslow products. Upshot of the survey was that when the results were in the company decided it would continue to allot part of its production to overseas sales and would even increase it as the situation warranted. At the same time it commissioned Oceanic to get to work on the sales end, giving the exporting house an exclusive on its overseas representation.

The exclusive feature is not common to all export houses handling domestic products abroad, but it is an iron clad rule with the San Francisco firm which considers that it has a vested interest in any product it is selling in the export trade.

Immediately after getting the greenlight from Winslow it started to take action on the results of its survey. I. A. Harris, who is the guiding factor in the organization's relations with Latin America unleashed a stream of sales letters. Not content with that he produced an advertising folder in Spanish, a two-color job, that shows with all the verve of a Donald Duck cartoon, the impossibility of a drop of dirty oil staying dirty when it comes up against a Winslow filter.

The combination of these two sales efforts, plus other techniques, so far has brought about a gradually increasing flow of orders northward to the Winslow plant. And with the opening of a new production line this month which will jump the rate of output for certain types of filters that have a heavy demand in both foreign and domestic markets, company officials feel that even more aggressive sales efforts will be justified in the foreign field.

Oceanic, however, surveying sales results and the present unusual market conditions through experienced eyes, is not prone to overestimate its salesmanship. Foreseeing a future in which the Latin American market will become increasingly competitive, a member of the firm warned that American manufacturers will have to continue, and increase when they can, their emphasis upon product quality and adequate sales representation in the market areas of Latin America.

Credit Relations

Since a sale isn't a sale until all the money involved has changed hands, Oceanic's experience in collecting accounts receivable is of interest to manufacturers casting an appraising eye at the southern half of the hemisphere. Of course, so far as the manufacturers it represents are concerned, the matter doesn't happen to be of more than academic interest, the reason being that Oceanic accepts financial responsibility when the goods leave the plant. That means all problems of billing, collecting and shipping are up to Oceanic from then on.

Accordingly, the fact that Oceanic's experience in credit relations with Latin American concerns has been of a most satisfactory nature, as reported by its officers, indicates that trade relations between Western firms and those of Latin America can be carried on fully as satisfactorily as with those of any other foreign area.

• Sales techniques that helped put America on wheels are now being used to put Westerners on wings. Above, is a parking lot from which Eddie Meyer sells used planes.

Step This Way, Gents For a Good Used Plane

WHETHER it be horses, automobiles or airplanes, when they begin to be sold—second-hand as well as new—from corner lots by siren-voiced salesmen who wheedle passersby in off the sidewalk, then it is a sure thing that the commodity is well on its way to the maximum in public acceptance.

That day for the airplane has now finally arrived as evidenced by the sale of planes, both new and second-hand, by Eddie Meyer off a parking lot in Los Angeles at Third Street and Vermont Avenue.

This, coupled with the impending appearance of a powered sailplane that will retail at $1,000 or $1,500, depending on whether or not it is bought in an assembled condition, indicates that the initial cost to the general public of getting into the air is dropping so rapidly that it is approaching that of getting into an automobile.

For those who buy aircraft through the RFC—and sales made by that agency to the general public in the West now are in the thousands — the cost of getting a plane is lower than that of buying most cars in the present market. Far the greater portion of sales to individuals have been at prices well under $1,000, the average probably being not much over $700.

To get a clear picture of just who the people are who are buying planes, Meyer is probably the best man to go to, both because of his long experience in selling planes as well as his aggressive sales tactics.

Meyer's operation as a vendor of aircraft is no peanut business. Last year he and his organization sold a total of 410 planes, an average substantially better than one a day. This year he expects to do even better—somewhat upwards of 500 planes. His expectations seem justified from the sales of a four-week period beginning in December and lapping over into January when they averaged two a day, or a total of 55 for the period.

According to Meyer, the type of people forming the greater portion of his customers are ex-servicemen. Many of them seem to have an irresistible urge to own and fly a plane. They seem to know exactly why they want one and how they intend to make use of it. Some plan to give flying lessons, others to develop a charter plane business, and some, of course, want merely to fly for pleasure and to make flying enthusiasts of their wives and families.

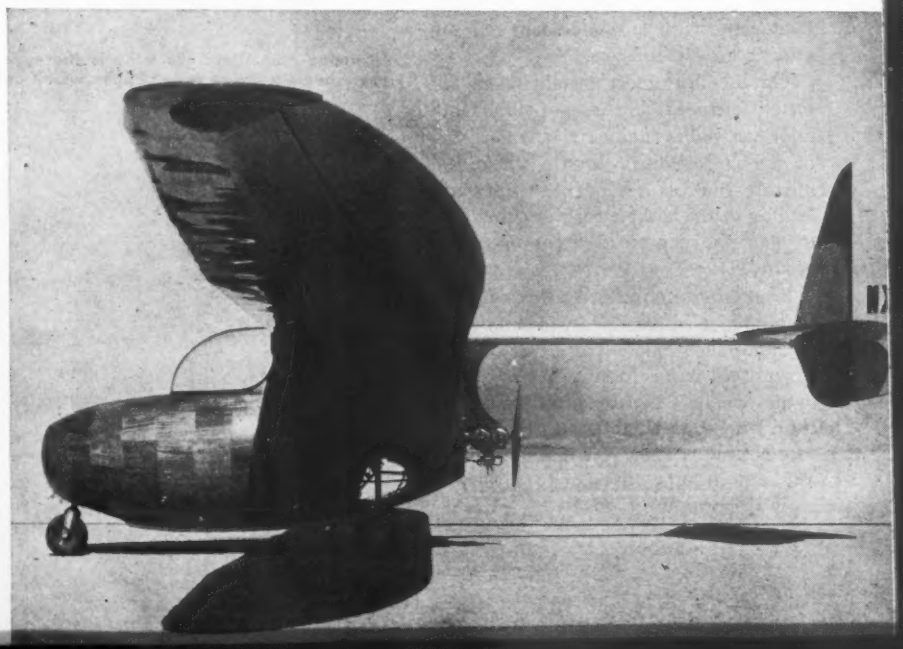
Asked why he wanted to buy a plane one customer answered that he wanted to fly to Puerto Rico. Another wanted to take his back to his farm in Texas. A third had an idea of tinkering with his machine with a view to its ultimate re-sale.

But though the greater part of sales are now going to those who have learned to fly while in the armed services, a strong demand for aircraft is making itself apparent among businessmen and business executives. For several months a large number of inquiries from businessmen scouting the market for five-place ships that will enable them to cover the wide reaches of the West in a far shorter time than can be done by any other form of transportation have come into the Meyer organization.

Keenness of this demand is mirrored in government reports of surplus property sales. These show that twin engine, multi-seat jobs, such as the Cessnas, sell rapidly despite the fact that they command an average price of $6,000, several times higher than that of the greater number of planes that have been declared surplus.

The demand for cargo ships, such as the 24-place Nord Norseman and the C-47, both twin motor jobs, and the Sky Master, a four-motor ship, is tremendous. Meyer

• A comparatively cheap way in which young Westerners will be able to learn to fly will be with the "Bumble-Bee," a low-cost, powered sailplane now under production.



says. Because of the price at which the latter has been sold by the government it can be retailed today, licensed, at approximately one-third of the manufacturing cost, he adds, and for that reason he has his buyers on the alert to snap up anything that appears in that classification.

In addition to selling used planes at "one-third down and your old car or plane in trade," some of them at as low a price as $695, Meyer is also handling Taylorcrafts, two and four-seaters that sell at $2295 and $3950, respectively. Here again he is using the technique of so much down—$763 in one case—and the balance in twelve easy monthly payments.

So far Meyer has apparently paid no attention to the glider field, but with the impending appearance of the "Bumble-Bee," produced by the Nelson Aircraft Corporation of San Fernando, California, it is probably only a matter of time until he will be handling some gliders, too.

The "Bumble-Bee" is a two-placed, auxiliary-powered sailplane. In other words, a glider that can get up into the air without being towed by an automobile at the end of a long rope.

Its engines, under production at the Nelson Specialty Welding Equipment Corporation plant at 440 Peralta Avenue, San Leandro, California, are of a two-cycle type with 25 horsepower, giving the sailplane a rate of climb of 300 feet a minute.

Once at the desired altitude the motor can be switched off and the pilot soars until the time has come either to land or to strike out for new thermal currents. When that happens all he has to do is to switch the motor on again and away he goes on powered flight. Capacity of the gas tank is three gallons, giving the craft a maximum of one and a half hours in the air under power.

The sailplane has a side-by-side seating arrangement with dual controls that permit either occupant to pilot the plane instantly. It is a strut-braced, high-wing monoplane with a single-boom tail supporting the tail surfaces.

On the instrument panel are an altimeter, airspeed and rate-of-climb indicators, as well as engine controls consisting of the conventional throttle, choke and mixture controls. A ratchet wire starter leading to the cockpit enables either pilot to start the engine in flight or on the ground.

Everything considered, the sailplane should prove extremely easy to handle, and its appearance coupled with that of other low-priced means for the public to take to the air, plus a healthy, growing, second-hand market in aircraft, plus the appearance of dealers' show rooms at some of the Western airports, all point to an increasingly air-borne West.

Deep Sea Fishermen Take to the Air

TUNA, so valuable to West Coast fishermen that they might almost be said to come from the sea wrapped in dollar bills are now being spotted from the air by planes to expedite their capture by surface ships.

And with the impending adaptation of radar to the chase the only further aid that science can give fishermen will be in the development of a submarine fast enough to outrun the fish, scooping them up as it goes.

The Republic Amphibian pusher-type "Seabee" shown above, is carried on the deck of Anthony C. Martinolich's crack tuna clipper, the "Pan American." When the clipper approaches the tuna banks off the coasts of Central and South America the "Seabee" is lowered into the water by the ship's boom. Airborne, it has a cruising speed of 110 m.p.h. It carries gas enough for five hours in the air, thus enabling the pilot to cover a wide territory, and report back by radio the presence of any schools of tuna he spots.

Once the school has been reached by the ship the pilot seeks safe anchorage to wait until the fishing has been completed before rejoining the clipper in preparation for the next scouting expedition.

So far Martinolich has purchased three planes for the work. Two are of the amphibian type and the third is a land plane, a Waco, bought from Howard Hughes at Culver City. According to present plans the Republic amphibians are to be stationed one at the Galapagos Islands, 700 miles off the Canal Zone, and the other at Costa Rica. The land plane will be used from San Diego to operate over the tuna grounds off the coasts of Lower California.

Though Martinolich is the first man to make practical use of plane-carrying tuna clippers the idea for the innovation is generally credited to a Captain Silva, World War I aviator who planned to use a seaplane from his tuna boat the "Emma R. S."

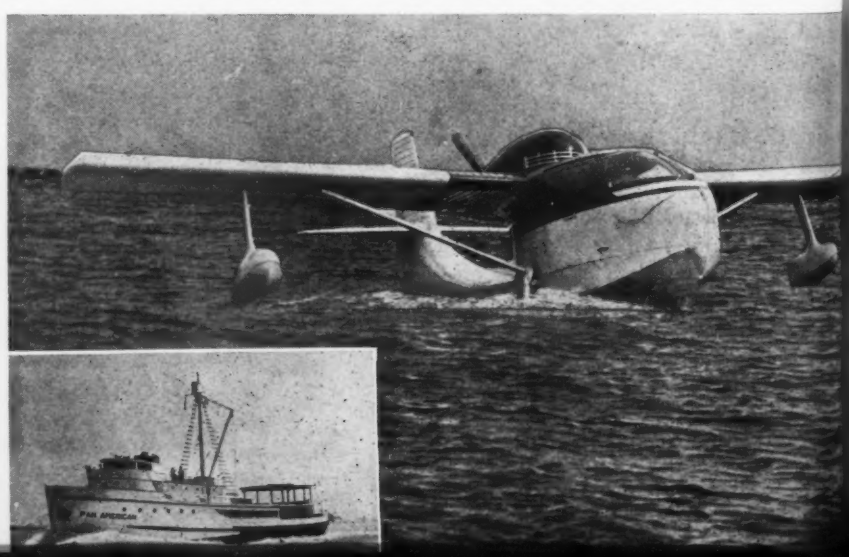
The depression, however, put a stop to his plans, and while John Rados, of the Harbor Boat Building company, equipped his clipper "Rajo" with the necessary facilities for carrying a seaplane on deck, actual spotting by plane was never put into practice.

In addition to being right out in front in his methods for spotting tuna Martinolich is also doing much to improve the design of tuna clippers. The "Pan American," built in San Francisco in 1945 on his own design, is powered by a 1500 hp. Enterprise Diesel and has a fish hold capacity of 425 tons. Other vessels of his, the 126-ft. steel "Dominator" and the "Sea Giant," have proved highly successful, but with tuna so valuable Martinolich is following the trend to bigger ships.

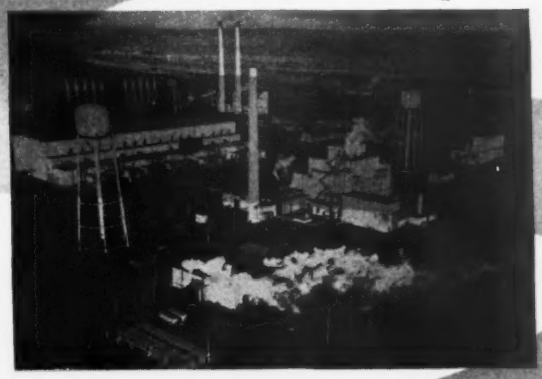
One of the latest clippers to come from the ways is the "Sun Dial," owned by another tuna clipper operator, with an over-all length of 131 feet but with a capacity of 500 tons. According to reports, it can carry the biggest load of any in the American tuna fleet. Cost of building is $450,000.

The fleet on the West Coast now contains approximately 50 150-footers, plus about 40 ships that have recently been released by the government from their four years of war work as inter-island supply ships.

• Coming about into the wind is the new "Seabee" used for spotting schools of tuna. Inset shows a crack tuna clipper which carries the plane to the ocean hunting ground.



Atoms vs. Kilowatts On the Columbia . . .



• The government's great power plant at Grand Coulee annually furnishes over 6 billion kwh to the rapidly expanding Northwestern industry.

• Will it compete with itself by furnishing industry with cheap atomic power from Hanford? So far it won't say, not even revealing the atomic plant's potential output of kwh.

• And from another plant at Bonneville the government also provides the region's varied industries with an additional 3½ billion kwh for its energy needs.

By N. C. DALKEY, Ph.D
Former employee, Radiation Laboratory, University of California, Berkeley

Editor's Note: As soon as the veil of secrecy over the existence of the Hanford Engineer Works was lifted last August, *Western Industry* immediately posed this question in its September issue article on the atomic project:

"Who can say whether the Hanford Engineer Works, breath-taking in concept and purpose, and costly beyond all our Western light metals, shipbuilding and aircraft plants—$384,000,000 exclusive of the land involved—will be a factor in the peace-time economy of the West?"

Now we have the first specific published evaluation of Hanford's industrial possibilities, in the following article. Obviously even more specific discussions are possible, which we will endeavor to publish as soon as they become available.

MOST of the great advances in industry have resulted from the discovery of new forms of power.

The industrial revolution at the opening of the nineteenth century resulted mainly from the harnessing of steam; the even greater advances at the beginning of the twentieth century depended on controlling energy from liquid fuels and electricity. The expansion of industry which will result from utilizing atomic energy will undoubtedly eclipse all previous advances.

At present, however, the status of atomic power is about like that of steam power when James Watt watched the teakettle blowing off its lid. Watt recognized that the expanding steam was capable of doing work. But the problem was to harness that capability so *useful* work would result.

This problem also remains in the case of atomic energy. At its first test in New Mexico, at Hiroshima and Nagasaki, the lid blew off the atomic kettle. A new source of power was proved to exist, vastly more potent than Watt recognized in steam.

But the development of machines to convert that energy to useful work has hardly begun. We may expect the greatest intensity of research and development on this problem by both scientists and engineers within the next decade.

Some foremost scientists have expressed the opinion that large scale production and consumption of atomic energy will be under way in five to ten years. This opinion would appear to be optimistic. But predictions that in 20 years or so atomic energy will be rivaling coal, gasoline, and electricity in importance are numerous and well founded.

Theoretically there are many processes in which the release of atomic energy may occur. According to a principle of relativity mechanics, enunciated by Einstein, there is an equivalence of mass and energy. In any process in which mass disappears, energy must be created.

The amount of energy corresponding to a slight amount of mass is immense; the disappearance of a pound of any material would produce about 11,400,000,000 kilowatt hours of energy. The complete transformation of about 500 pounds of material would yield as much energy as the total yearly consumption of coal in the United States, some 660 million tons!

The process whereby energy is created in the atomic bomb involves no such complete transformation of matter into energy. In this process the uranium (or plutonium) atom splits into two parts. The weight of these components after the atom disrupts is slightly less, about one tenth of one percent less, than the weight of the original atom. One thousandth of the original mass has disappeared. Thus if all the atoms of one pound of uranium undergo this splitting process, technically called fission, 11,400,000 kilowatt hours of energy will be produced.

At present four elements are known which undergo the process of fission and

are thus useful in the production of atomic energy. These are protoactinium, thorium, uranium, and plutonium.

Protoactinium is so scarce as to be unimportant. Uranium occurs in the earth's crust in about four parts per million, thorium in about twelve parts per million. Plutonium has not been found in nature, but is created from uranium. Rough estimates indicate that there is sufficient atomic energy available in known deposits of uranium to supply the total power needs of the United States for two hundred years.

This figure, although impressive, represents only a small fraction of the energy which may be expected to become available through the discovery in the future of new processes and new materials. Research aiming toward the development of such new processes is already under way. It is possible that some method of completely transforming matter into energy will be devised, making available sources of energy a thousand times as powerful as the present fission process.

The production unit for atomic energy in its present form is the so-called "pile." A pile consists essentially of a lattice-work of uranium interspersed in a substance called a "moderator."

At the Hanford plant in Washington the moderator used is graphite, and the pile consists of bricks of graphite, with numerous horizontal channels into which cylindrical rods of uranium may be inserted. In the future other moderators may be used, heavy water being the most promising.

In the pile, part of the uranium undergoes fission, and the energy released appears as heat. Another part of the uranium is transformed into plutonium, which may again undergo fission and produce more heat. The essential feature of a pile is that by its means the fission process may be *controlled* so that the energy production is constant over a period of time.

In the case of the atomic bomb, the process is not controlled, the energy is released in one devastating blast. Aside from a few uses of atomic energy as a super explosive, most applications will of course require the controlled reaction of the pile.

The heat produced in a pile may be used for the same purposes that heat from ordinary fuels is used. Heating water for steam to drive a steam turbine, or heating gases for a gas turbine, are two of the possibilities for transforming the atomic energy into useful mechanical energy. The heat may be used more directly to warm building space, or in large scale drying processes in industry. In all of these applications, atomic energy will be competing directly with the fuels now used for these purposes.

The popular picture of the use of atomic energy in the form of a tiny "pill" in a midget engine has no foundation in the processes now known. There is a minimum size for a pile, determined by the properties of the moderator and the purity of the uranium. Below this minimum size the reaction is not self-sustaining, the atomic "fire" goes out.

Statements such as "A mighty ocean liner may be driven across the Atlantic with a thimbleful of fuel" are utterly misleading if they are taken to mean that materials will be used in such small quantities. It is to be expected that large stationary installations, or semi-stationary installations such as power plants for ships, will be the first form in which use of atomic power will be made.

The major problem confronting the use of atomic energy at the moment is its high cost. Assuming that uranium can be produced at $10 per pound, the cost of the energy released would be roughly equivalent to that of coal at $1 per ton, if all the available energy were utilized. Unfortunately, the pile cannot be operated beyond a point where only a small fraction of the total available energy has been utilized, and hence the costs are markedly increased.

Rough estimates of the overall efficiency of a pile give figures of the order of one percent. To this is to be added the cost of installation which is much higher than for normal heat plants. This higher cost results from the complication of controls and the extensive shielding necessary for safeguarding against harmful radioactivity in the pile. In all, the final estimate for the cost of atomic energy is highly discouraging in comparison with present fuels.

There are a number of ways in which this high cost may be reduced. Piles using processed uranium are much more efficient than those using the unprocessed metal.

At present the cost of processing the uranium is itself extremely expensive, but future developments may see this cost cut radically. The equipment now in use in the

POSSIBILITIES OF ATOMIC POWER

By L. W. CHUB, *Director*
Research Laboratories, Westinghouse Electric Corporation

AN ATTEMPT to set atomic power into its proper place in the engineering world is about as difficult as a prophecy of the future of electricity might have been at the time of the first electric lamp. Only more so. Generation and production of electric power were allowed to follow a natural course as dictated by engineering developments and economics. But superimposed on the technical developments of atomic power will be political and military controls, the extent and effects of which are still undetermined. In appraising the technical and economic possibilities of atomic power, however, a few facts stand out clearly:

1. Atomic power is an actuality. The atomic-energy piles at Hanford, Washington, are continuously delivering several hundred thousand kilowatts of thermal energy, enough to raise sensibly the temperature of the Columbia River.
2. The cost of that energy, which is a by-product, if known, has not been made public. It would seem, however, that it must be high, probably many times that of other fuels. The costs of preparing sufficient purified uranium for practical piles are likely quite high. Furthermore, complete "burning" of a prepared lump of uranium is not possible. Just as ash accumulates around a chunk of burning coke, which tends to slow down or stop the combustion, so the nuclear processes produce substances that retard the reaction. In a relatively short time the "poisoning" reaches such a degree that a complete and expensive refining operation must be performed or the uranium discarded.
3. Controllable atomic-energy generators of smaller size and weight are possible now. However, as the size comes down the richness of the fissionable material must be increased. Costs rise astronomically with degree of enrichment.
4. The fission products are strongly radioactive for periods varying from seconds to years. Radiations from the power source are extremely hazardous to any form of life. Protective measures require thick barriers of appropriate materials. The bulk and weight of safety devices for small power plants would far exceed that of the pile itself.
5. Fission is now accomplished with uranium isotopes, and plutonium which is derived from uranium. The amount of uranium ore and its distribution over the earth, if known, has not generally been disclosed.
6. Nuclear reactions to achieve energy release with other elements is theoretically possible and may be practical although no announcement of such has been made. Thorium is one possibility. It should be remembered that heat is available either by fission of heavy atoms into elements near the middle of the atomic scale, or by synthesis of lightweight elements into higher ones. Heat from the sun is thought to be energy released from the combination of hydrogen atoms with helium atoms by successive nuclear reactions.
7. Atomic power almost assuredly will become a practical power source, likely apparent application is for ship propulsion, or large power and heating plants using atomic fuel. Small-size power plants for private vehicles appear impractical. Above all—aside from governmental controls—the laws of economics will apply. Inasmuch as fuel costs are only a portion, sometimes quite small, of the total power-production costs, investment costs and special performance requirements may be the deciding factor. If the equipment costs for an atomic power plant are high, the plant may not be able to justify itself even if the atomic-reaction material were to cost nothing.

These practical difficulties, large though they be, should not obscure the fact that atomic power presents to the technical man enormous, fascinating opportunities and to the average citizen the greatest force of all time, for good or evil as he sees fit to use it.

government atomic bomb project at Hanford, Washington was designed, not for the production of power, but for the manufacture of plutonium; the power is a waste product. Peacetime designs will have as their primary object the production of power rather than explosive material, hence they may be expected to be much more efficient.

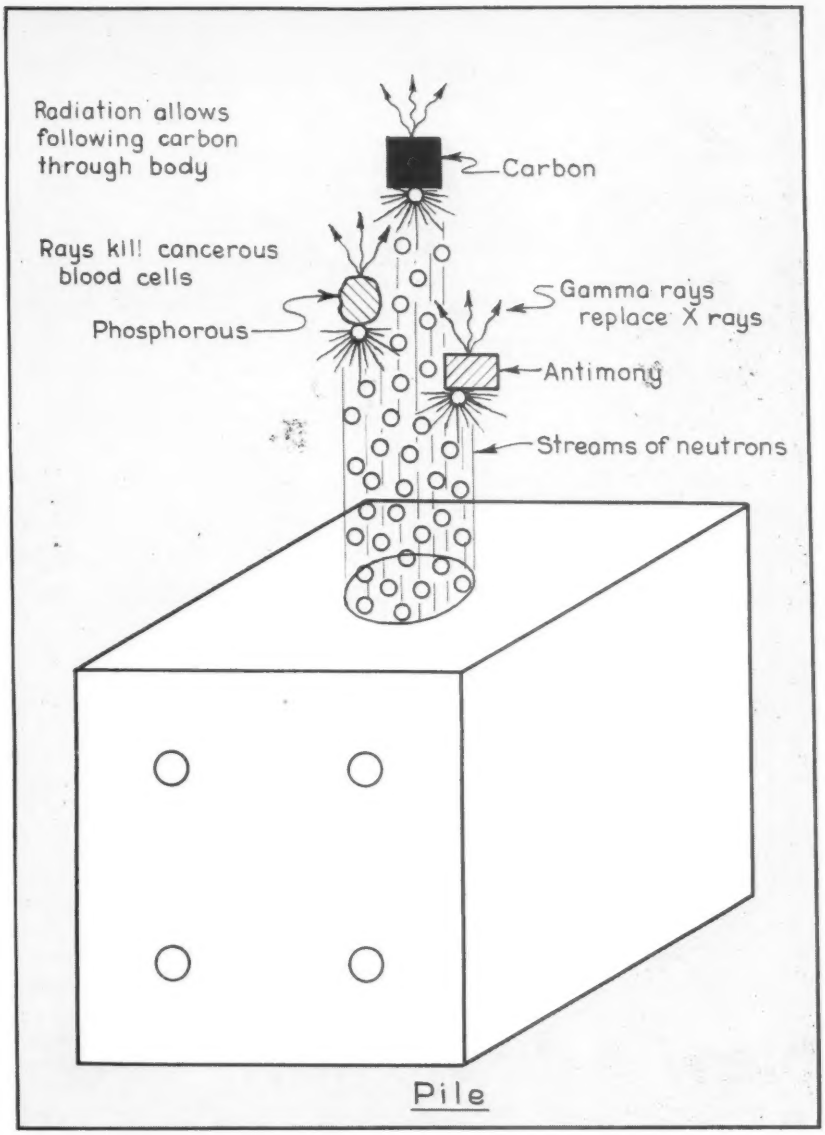
One secondary application of atomic energy may prove to be extremely important in the overall economic picture, namely the utilization of the by-products of uranium or plutonium fission. In the intense "atomic fire" found in a pile, new substances are forged, many with valuable properties. Among the most important are a number of different radioactive materials. If a hole is opened at the top of a pile a stream of neutrons emanates. Neutrons are relatively heavy, uncharged particles with great penetrating power. Most substances when bombarded by this stream of neutrons themselves begin to emit radiation in a manner similar to radium.

Antimony, for example, subjected to the radiation from a pile, becomes radioactive, emitting gamma rays of nearly two million electron-volts energy. Gamma rays are an extremely short-wave radiation similar to X-rays. A small piece of antimony thus may replace a whole two million volt X-ray apparatus.

Another valuable product is radioactive carbon, which is widely useful in research in medicine and agriculture as a harmless tracer. Radioactive phosphorous has proved to be of value in destroying the cancerous white blood cells of leukemia.

In the metals industry various radioactive substances have already found wide use as indicators. At present, the scarcity of such substances has made their use extremely costly.

With a host of new radioactive substances created in the atomic fire, a vast new field of research is opened up. These valuable by-products may prove to be the chief contribution of atomic energy to industry for the next several years.



• While atomic energy has proved the greatest destroyer, it may cure as well as kill.

One question stirring discussion at the moment is the future of the tremendous government controlled Manhattan Project, the $2,000,000,000 "atomic bomb" war giant. Do these huge plants have purely military significance, or is there reason to believe that they can be converted to peacetime use?

The Manhattan Project was created directly under the stimulus of war conditions and is primarily designed for war production. The two production plants, one at Oak Ridge, Tennessee, the other at Hanford, Washington, have as their purpose the production of processed uranium and plutonium respectively.

Oak Ridge is not an atomic plant in any sense; it neither produces nor uses atomic power; it is a uranium refinery.

The Hanford plant uses atomic energy from uranium to produce plutonium. In this respect the Hanford plant has a great advantage over the one at Oak Ridge, since only about one part in 140 of natural uranium can be used directly to produce atomic energy, whereas at the Hanford plant plutonium, all of which is utilizable, is made from the otherwise worthless but more abundant part of the uranium.

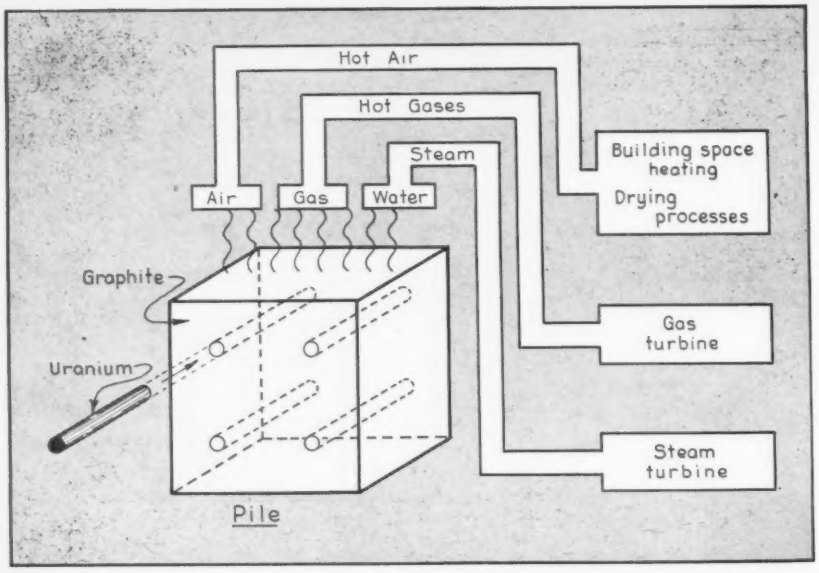
Hanford has another major advantage in that the valuable radioactive by-products mentioned above can be produced by the apparatus there, but not at Oak Ridge.

In addition to plutonium, which may be used for atomic bombs or for further power production, the Hanford plant creates a vast excess of atomic energy (of the order of a million kilowatts, or about the same amount as the total output of Grand Coulee Dam Station). At present this energy is used only to heat the Columbia River.

It seems unlikely that this excess energy can be given a useful form with the present plant design. Furthermore the location of the Hanford plant was chosen without consideration of peacetime utilization. The choice of site was made partly on the basis of seclusion—for purposes of secrecy, partly because of the convenient power of the Grand Coulee Station, and partly for the possibility of using the Columbia River as a cooling system.

In all, there seems to be little reason to expect the development of any industries in the vicinity which could make use of the tremendous excess energy which is now a waste product.

Nonetheless, the Hanford plant can be



• **Atomic fire from an uranium pile can perform multiple duties greatly aiding industry.**

of great value to industry in other parts of the country by producing large quantities of radioactive substances while it is in operation to build up the nation's stockpile of plutonium for military purposes.

From the point of view of the research that has been accomplished, and the proof that atomic energy could be put into large scale operation, the Manhattan Project was a tremendous leap ahead in the utilization of atomic power. It compacted what might have been 50 years of peacetime research and development into three years of concentrated effort. This contribution to industry alone, aside from the uncalculable military significance of the project, goes far to justify the huge expenditure required.

One question mark is whether restrictions resulting from international agreements on the use of atomic power will impede the development of industrial uses for this potent source of energy. It is to be hoped that sufficient trust can be maintained among nations so that free use of atomic energy to widen the productive power of mankind will be possible.

New Adaptations For Aluminum Reported

BECAUSE of the resistance of aluminum to acid fumes the Oregon Pulp and Paper Company is going to use corrugated aluminum for the sidings of its new digester building at Salem, Oregon.

The new building in which manufacture of sulphite pulp from wood is to be carried on will replace a structure that was destroyed by fire last fall.

Locks of aluminum, now being produced by the Schlage Lock Company in San Francisco, are among the latest building accessories of the postwar period.

By means of a special process, the locks, which may be used in either interior or exterior locations, are highly resistant to tarnishing, staining and other corrosive effects of weather. Furthermore, the adherent coating of aluminum oxide which gives the lock its distinctive silver appearance is integral with the surface of the parent metal and cannot peel off.

Using a former war plant at 601 N.E. 28th Avenue, Portland, Jarman-Williamson Company has taken the tools and metals of war to turn out an aluminum golf cart with retractable knee-action wheels.

Bringing to the market a gadget which has proven a boon to many golfers on caddyless golf courses the company has already received orders at the rate of 1500 a month. The plant is equipped to turn out 2000 a month and space is available for further expansion.

Designed by Bruce Williamson, a member of the firm and golfer, the gadget called "Bag Boy" is designed to fit any golf bag and can easily be wheeled about the course. When not in use its wheels fold up on the same principle as the retractable wheels of an airplane.

Former war workers at the plant "converted" to their new jobs along with the building.

Support Needed For Shipbuilding

Support from local civic groups in the West was largely responsible for the 6 per cent differential amendment to the Merchant Marine Act, and similar support today will help to keep repair work on the West Coast and assure a reasonable amount of new construction, according to James R. Moore, president of Moore Drydock Co. of Oakland.

Speaking at the California State Chamber of Commerce annual meeting in Los Angeles, he said a significant and somewhat disturbing fact is that Swedish shipyards are reported to be booked with orders that will keep them supplied for several years, while on our West Coast almost without exception every shipyard is either idle or prospectively so.

The Merchant Marine Act provides if the prospective ship is to be used in foreign commerce, the operator may be granted by the government a construction differential subsidy equivalent to the difference between domestic and foreign construction costs. This may equal one-third of the cost of the ship, or in certain cases as much as half. If the principal place of business of the operator is on the Pacific Coast, the Maritime Commission is bound by the Act to award the contract to the lowest responsible Pacific Coast bidder if such bid does not exceed the lowest Atlantic Coast yard bid by more than 6 percent.

If the ship is to be used in domestic commerce, no construction differential may be paid, but if the ship operator's principal place of business is on the Pacific Coast, the contract must be awarded to the lowest responsible Pacific Coast bidder if it does not exceed the lowest Atlantic Coast yard by more than 6 percent. The operator is recompensed for the extra cost through a reduction of ¾ of 1 percent interest on the money he borrows from the Maritime Commission. Thus he pays 2¾ percent instead of 3½ percent interest, which in the amortization period of 20 years results in a saving to him of almost exactly 6 percent of the cost of the ship.

Electron Microscope At Washington State

A hundred times more powerful than the common optical microscope, a high magnification electromagnetic electron microscope has recently been installed at Washington State College in Pullman, Washington.

To be used in physics, chemistry, industrial technology and other fields, the instrument will make viruses visible and may permit the visual detection of some organic molecules, according to Dr. Paul A. Anderson, head of the physics department at the college.

The microscope is the second of its type to be manufactured and the only one of its kind in the Pacific Northwest.

Retail Outlet is Testing Laboratory

Manufacturers Can Gain Valuable Information From Stores on Salability of Their Products

By E. M. STUART
Broadway Department Store, Inc., Los Angeles*

THE retail outlet is the real testing laboratory for a new consumer goods product. "We have many instances where simple customer criticisms and adjustment department reports have caused the manufacturer to slightly alter or change the design of his product and thereby step-up sales and increase the distribution of his product.

Always remember that your stores are glad to see you and discuss with you your new product. You will find the merchandise and buying staff of every reputable store glad to meet you and talk over your problems with you.

In most stores there are divisional merchandise managers, who have the merchandise supervision of certain related departments. In the event you do not have a direct contact with the buyer of the department you wish to contact, the best procedure to follow is to contact the divisional merchandise manager. He will be glad to talk to you and make a contact for you with the proper buyer.

In the event that you do not have even this connection, do not hesitate to visit the general merchandise manager's office directly. You will find the staff very helpful and willing to see that you are courteously talked to by the proper person.

Let me emphasize again that you will constantly find the stores sympathetic and anxious to see you. It will only be your timidity that will keep you from the open door you seek.

Many new manufacturers have problems relating to pricing, design, color, weight, etc., to ask. In many instances you may want to have information concerning mark-up, selling price, discounts, allowances, advertising and promotion. Take your problem to your merchandise friend and he will advise you. We have seen too many products fail because of certain deficiencies or poor pricing or failure to properly figure cost to want to see more go the same way.

One of America's finest industrial designers told us that the finest research staff in the world, as far as his organization was concerned, was the Macy buying staff in New York.

You may also find a distinction between selling a chain store operation and an independent. As a general rule you will discover that your chain store has a regional buying office. This office may control the operation of merchandise buying over an area of several states. We suggest that you call their nearest headquarters' office and ask where their divisional buyer for your particular type of merchandise can be contacted. It is our experience that this is easily done and you will get quick and courteous treatment.

Another thing to remember concerning the independent store is this: Many of them belong to buying offices or to affiliations of other stores in the merchandise field. For example, in Los Angeles we have a number of buying offices and resident buyers of eastern stores. The list of these offices you will find in the classified directory.

We have had a great deal of experience in directing new manufacturers to these offices and with most excellent results. For example, one large buying office representing over fifty of the finest stores in America saw a new man in this field a few weeks ago and was so impressed with his product that they placed an order for ten thousand units to be distributed all over the United States. Another thing we have found is this: as a usual thing the buying office representative is full of ideas and suggestions. Many a product has had its final refinement ironed out in one of these conferences.

One thing we would like to suggest is that in calling on a store you try, if possible, to have a complete picture of your product, its selling points, price at retail, cost, etc. You will find this very helpful.

A retail store, sold on your product, can and will be willing to do a tremendous amount of exploitation for you. It will amaze you to see how much advertising you can get without cost for yourself. But remember this, in planning your promotional attack on the store see that you have a completely wrapped up package. Outline your packaging, displays, counter cards, window displays, radio material, etc. Nothing sells as well as a completely wrapped-up package. Your stores like to have this complete over-all picture.

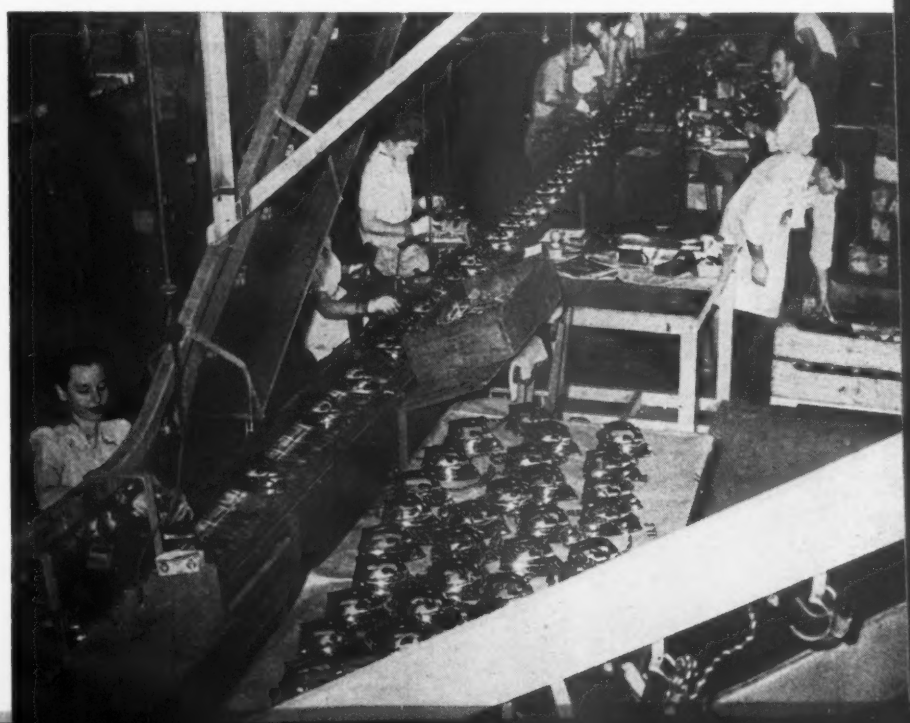
*From paper presented at Sales Clinic held by Los Angeles Advertising Club.

Interstate Cooperation Meeting at Salt Lake

Commissions on interstate cooperation for the Western states will meet at Salt Lake City February 15 and 16, with Attorney General Grover Giles of Utah presiding, and several matters of industrial interest on the program.

These include Western cooperation for industrial development, with particular reference to the aluminum situation, possibilities of a Pacific fishing compact between Washington, Oregon and California to control deep sea fishing after the pattern of the Atlantic Coast set-up, and proposals for handling the over-all river developments such as on the Columbia and Missouri by interstate compacts.

• General Electric's electric iron assembly line at Ontario, Calif., supplies the whole country. As the irons come off the moving conveyor belt, they are hung on an overhead conveyor, plugged in and given performance test while moving on toward final inspection.



Can Ordnance Use Western Plants For World War III

Maybe World War III will never come, but if it does the time to prepare is now. In the future, luck might not be with us.

NO better evidence of the growth of industry in the West exists than that in comparison of the number of contracts let by Army Ordnance to Western factories during World War I and World War II. More important than the marshaling of that evidence, however, is the conclusion that is inescapable in making the comparison. That conclusion is important because it vitally affects us if or when the outbreak of World War III comes.

During World War I, in which the casualties of all belligerents, amounting to 37,494,186, exceeded those for World War II, contracts let by Army Ordnance in the nine states of the San Francisco Ordnance District amounted to exactly one. During World War II from the summer of 1942 until early in 1945 the number of prime contracts on the books of the district during each month amounted to approximately 400. In addition to that there were thousands of sub-contracts.

But the reason for this staggering difference does not lie solely in the growth of the West's industrial establishment. To a considerable extent, just how great an extent will not be known until the history of Army Ordnance is written, this difference is due to a running survey of industrial facilities in the West conducted by the district during the years before the beginning of the recent conflict.

That point is of maximum importance.

From that survey, such as it was, stem the causes why the West was able to make the magnificent contribution to the war effort that it made. Indeed, it is not too much to say that the course of the war was appreciably speeded up owing to the survey's having made it possible for the latent industrial strength of the West to be brought quickly into full play in the interests of the war effort.

And since the likelihood that war has been banished from the planet is still decidedly remote it is of paramount necessity that a running industrial survey of the West's industrial strength be continued.

To some this contention might seem so obvious that it would be unnecessary to beat a drum about it. Unhappily the obviousness of a thing is no guarantee that it will be acted upon. In fact, the history of the United States is replete with cases in which the country at the close of a war has deliberately turned its back upon the most obvious lessons gleaned from the conflict.

After both the Civil and Spanish Wars, industry in the West in relation to the techniques of the times was already in a stage that was more than nascent. By the time World War I came along, though it was extremely young, it gave unmistakable evidence of being very lusty. But despite this, despite even the experience gained from these past wars and the threats of war in between, the government waited nearly four years, until May 1922 before establishing the San Francisco Ordnance District.

How It Began

And when it finally did take that radical step the extent to which it went was to establish one officer and a secretary to care for his correspondence at 58 Sutter Street in San Francisco.

In taking that step the government was not unlike a small boy about to go swimming who sticks his toe into the water and then shivers on the bank. From 1922 until 1939 the entire staff didn't grow any larger. Not only that but the annual budget for supplies in the office was held to the maximum of $25. With this allowance, plus another minute sum for carfare and no provision for an automobile, the great republic of the United States endeavored to keep itself informed of industry's potentialities for war production in the West, roughly a third of the geographical area of the nation.

Fortunately in 1939 when the government began to appropriate more money for war preparation, the district staff was considerably increased. As a result of that increase, and the preliminary work done by officers such as Colonel K. B. Harmon, who had served as district chief in the years before 1939, Washington was able to have fairly complete information on the industrial potentialities of the West pretty much at its finger tips. Within a few hours from the time the dust of Japanese bombs had settled at Pearl Harbor, Ordnance, thanks to the information it had gathered in peacetime, was able to get the job of war production under way rapidly.

To say that having that information available was of maximum importance is

• This grinder was built in the shop of the Christy Gun Works at Sacramento, California, from scrap material that included an auto rear axle, its housing and brake drum.

not enough. It was a matter of stark necessity.

The District's Part

Only because the San Francisco Ordnance district was able to supply it to Washington could the entire country benefit from the West's industrial strength. And only because the information was so comprehensive was the government able to reach into each nook and cranny of the West, not merely into its larger plants, but even into the garages and back alleys of its smaller towns and cities to bring the country's full resources into play.

That sounds a little like more than a bit of rodomontade. But the example of the Yuba Manufacturing Company and its sub-contractors proves that it isn't.

Yuba Manufacturing Company in Benicia, California, up to the time of its first war contract in 1942 was engaged mainly in the construction of dredges for mining. Tolerances to which it worked amounted to generally no more than 1/64th of an inch.

As a result of its studies of the company's production techniques, however, Army Ordnance felt sure that the Benicia firm could do a bang-up job in turning out .155 mm howitzers for use against the Japs and Nazis, even though such work required machining to tolerances of 1/500th of an inch.

Plenty of witnesses to just how right Ordnance was in its judgment are to be found today among the artillerists returning from the wars, and mute evidence is furnished by many funeral urns before the shrines of Japan and among the rows of swastika-bearing crosses in Nazi burial grounds.

But the job turned out by the Benicia firm would have been impossible except for the part taken by its sub-contractors who had been spotted by Ordnance District officers.

Christy Gun Works

A case in point is that of a Sacramento firm, the Christy Gun Works. Prior to the war it was virtually a one man organization that had its reason for being in turning out gunsights for hunters up and down the Sacramento Valley. Small as it was, Ordnance know that it could do what was demanded of it in turning out a critical part for the .155's—that it had the know-how.

An idea of how the contractor was able to deliver the goods can be gleaned from two salient points. The garage-workshop was extended so that it could accommodate a total labor force of 60 men, 20 on each shift, and shortages of critical materials were met by an ingenuity that employed shotgun barrels for pipes in the absence of regular piping material.

Point of this story is not that Westerners had the ingenuity with which to meet a demand thrust upon them, but that largely because of an ordnance survey they were given the chance to meet the demand.

Fully as much to the point is the story of how an entire tank-recovery unit plant was moved from Renton, Washington, to Billings, Montana.

In January 1943 it was suddenly decided to use the Pacific Car and Foundry plant at Renton for the manufacture of B-29 parts. Though the plant was already engaged in turning out the tank-recovery units at a cost of $25,000 each, it was considered essential that that business be moved to make way for the plane parts operation.

Tank recovery unit production for a time was in the position of being all dressed up with no place to go. Production of units that large, on the scale required, demand certain essentials in factory construction that must be met. The West was pretty well jammed with war production contracts, but fortunately Ordnance knew that in Billings, Montana, were some buildings used annually by the Midland Empire Fair which would fill the need. Furthermore, Billings was the center of a labor area that had a No. 4 rating indicating that the labor supply greatly exceeded the demand.

Acting on this information Ordnance ordered the transfer of the plant. And because of the detailed information it possessed, plus the effciency with which it timed the operation, it was able to carry out the move without any decrease in output of tank-recovery units.

Steps to Take

In view of the fact that only because government, through Army Ordnance, took the necessary steps of gathering the information that enabled the West to play such a part in the recent war, it becomes wise to inquire just what steps are being taken to continue the practice during the days of uneasy peace upon which the country has now entered.

Is the United States going to do as it has done after all other wars—practically nothing in preparation for the conflict which history shows always breaks upon us? Or is it going to turn its back upon the lessons of past history?

The answers to these questions are still wrapped up in the unwinding tapestry of the future.

At the offices of the San Francisco Ordnance District all that ordnance officers can definitely say is what is going on right now. In January of 1945 the number of workers of all ranks and classifications on the district staff amounted to 1,400. At present the figure hovers around 200. By the end of June, 1946, it is expected to come to not more than 30. What it will be after that not even Congress knows, though it is Congress which will ultimately have to decide.

But whatever Congress may finally decide to do, common sense, even in this day of the atomic bomb, dictates the logical answer.

• Hand points to gun barrel used as piping on this home-made heat treating furnace that gave good service in ordnance work.

Ordnance districts throughout the country—and for the benefit of certain Congressmen whose eyes, mentally or otherwise, never see this half of the continent, the country does include the 9 Western states—should be so adequately staffed that a constant, accurate running index of industrial resources would be kept at all times.

Not only that but adequate provision should be made so that the Army can place an abundance of what it calls "educational orders" with industrial plants. Educational orders are placed for new devices which have never been produced on a substantial scale. By giving them, and only by doing that, is it possible to discover the production bugs which would slow output if production were left until the country is involved in another war.

For those who state that use of the atomic bomb has outmoded both the techniques and weapons of warfare so completely that we can dispense with such a survey so long as we devote plenty of work and money to development of atomic weapons, careful thinkers will reserve a horse laugh.

It is quite true that today no man can glimpse the ultimate effect of atomic power upon warfare. Quite possibly it may introduce a whole host of new weapons such as the ray pistol and atomic weapons that Flash Gordon is currently using in the comic strips.

But even if it does, even if the whole complexion of Mars itself is changed, the Army needs to know from week to week exactly what the industrial potential of the West and the entire country is.

For only by so knowing will the entire country be able to spring to arms immediately—if or when—another war bursts suddenly upon us.

Plastics Help Solve Maintenance Problem

MAINTENANCE activities for the Navy on the Pacific Coast are now assuming the size of a major task with over 960 ships so far assigned to five West Coast ports for berthing in an inactive status.

Hot plastic paint, plastic stripable film and a rust preventative compound, along with "dehumidification" techniques are the varied means by which the Navy will preserve its huge peacetime reserve fleet.

This reserve fleet, which happens to be officially known as the Nineteenth Fleet, is not unlike the 19th hole on a golf course. The similarity exists because it is in the Nineteenth Fleet that the navy applies its hot plastic paints and other compounds and potions cooked up to make Uncle Sam's ships most remarkably well preserved. Members of the Anti-Saloon League might carry the comparison a step farther by pointing out that the hot plastic paint is poisonous to men and barnacles alike, though there is small danger that the former will take any internally.

Barnacle Poison

The paint gets at the barnacles by being applied to the ship's bottom, and it has the same lethal effect on all types of marine life that tend to foul the hulls of inactive vessels. Effective life of the paint on ships that are laid up is about five years and applied to ships that are still on active duty it lengthens their period out of drydock by about four times.

• Coated with a rust preventative and covered with plastic bags by spinning a web of liquid plastic over frames of tape, Navy guns are easily kept ready for a future need.

Just how revolutionary these new protective devices are is indicated in the fact that heavy coatings of grease, difficult to apply, difficult to remove and not completely efficient, no longer have a place in the maintenance techniques of the postwar Navy. To all intents and purposes they are as dead as the dodo.

Preserving Guns

Guns, for example, of too heavy a calibre to be taken below for storage in a dehumidified space, are first given a thin coating of rust preventative. The chemical is applied by spraying on open parts and by flushing for interior sections of equipment. Once in place, it prevents air and its rust-creating moisture from touching the machinery. The compound is wax-like in appearance. About 10 gallons of it at a cost of approximately 75 cents a gallon is enough to fill the requirements of the average ship.

A remarkable advantage of its use is that removal of it is unnecessary when the time comes to put the machine into operation again. Strangely enough, it acts as an initial lubricant when the machine is brought back into use.

In the case of guns, after receiving an airtight casing they are given further protection from the elements by means of either a metal hood that is sealed to the deck or by being covered with huge plastic bags.

The plastic bags are created by spinning a web of liquid plastic over frames of tape. The liquid plastic is put on by means of a spray gun in five applications. When this part of the job is completed a coat of aluminum paint is applied as a means of eliminating any breathing brought about by temperature changes. At periodic intervals any moisture is pumped out of the skin-tight elastic covering and absorbent chemicals are employed to remove any other moisture that may have escaped the pumping operations.

Maintenance of Interiors

Maintenance methods used for the interior of vessels are also very different from those in favor formerly. Essentially they fall into two classes: the static, employing a dessicant or drying agent, and the dynamic, involving a dehumidification machine which sucks humid air in, dries it and expel it back into the interior of the ship.

Drying agent used in the so-called static method contains silica gel or activated alumina which removes moisture from the air by processes of absorbtion. This is of particular value in interiors where there is no flow of air as in peaks or void tanks.

Silica gel is also used in the dynamic method technique. When the machine sucks in moist air it is carried over the silica gel which removes the moisture. When the

gel has reached its capacity for holding it is dried out by being subjected to heat.

On a vessel of average size a single machine serves to dehumidify the interior. On the largest ships as many as six may be required to do the work. Cost of the machines is in the neighborhood of $1,500 each, and they are automatic in their operation. Control of the machine's operation is by means of a humidstat. One of these is placed in each of the dehumidification zones into which the interior of the ship is divided. As soon as the humidity has fallen to the danger level, in some cases weeks are required for this to happen, the humidstat activates the machine which starts to remove the accumulated moisture.

An indication of the success of the machine lies in the Navy's statement that a piece of polished brass that would normally corrode overnight when exposed to normal air, can be expected to maintain a high gloss in atmosphere controlled by the dehumidification machine.

Major Advantage

Major advantage of the new methods of preserving ships and their equipment is that it will enable the Navy to draw on its reserve fleet rapidly as changing world conditions might justify.

In the years following the first World War methods of maintaining ships withdrawn from active duty involved their virtual stripping of not only a substantial part of their armament but also of their machinery much of which was completely dismantled and left in an open condition under an application of heavy grease. Accordingly, excessive lengths of time, in some cases as much as six months, were required to put them in condition for active service.

Under the present set-up with its modern maintenance techniques, the task of readying even the greatest ship for active duty should not require more than 30 days.

The ships of the "stand-by" Nineteenth Fleet, under the command of Admiral Royal S. Ingersoll, USN, Commander Western Sea Frontier, will go "on ice" as follows: Bremerton, Wash., 60 larger units of the fleet comprising battleships, cruisers, first line carriers and repair ships; Tacoma, Wash., 32 ships, mostly escort carriers; Astoria, Ore., 500 ships mostly amphibious, patrol and mine craft; Mare Island, Calif., 60 submarines and several submarine tenders; San Diego, Calif., 274 destroyers, destroyer escorts and auxiliary ships.

In view of the currently unsettled international situation, and with the use of atomic weapons still in its infancy, it is obvious that even with the tremendous task of maintaining such a fleet in West Coast ports it is the part of wisdom for our government to do so.

Handling Material In Mine Shaft Sinking

SHAFT boring rather than the traditional method of sinking shafts by blasting and mucking is due for a rapidly widening use in Western mining operations during the postwar period.

To a large extent the reason for the change lies in the fact that an essential aspect of the task of sinking a mine shaft is that of materials handling. The rapidity and safety with which material can be removed from the bottom of a shaft has always been of prime importance to miners. Today, with the heavily increased costs of operation, they are more important still. Accordingly, the advantages of shaft boring techniques are and will be even more closely scrutinized by mining men than in the days before the war when operations costs were far lower.

Though few vertical shafts have been sunk by boring since the sinking of the 1,125 ft. deep, 5 ft. circular shaft at the Idaho-Maryland mine at Grass Valley, California in 1936 with a technique evolved by J. B. Newsom, the success of the Reynolds Mining Corporation in drilling its two-compartment shaft at the Covington bauxite mine near Bauxite, Arkansas during the war period indicates increased use of the drilling-boring techniques.

Problems Differ

While the problems encountered in sinking a shaft through sands and clays are vastly different from those met in hard rock, the operators of the Covington mine felt that if hard rock could be successfully bored for over 1,000 ft. a shaft could be sunk through sand and clay by an adaptation of oil drilling techniques. Their experience proved them to be correct.

According to a Bureau of Mines circular, drilling of a 2 ft. diameter pilot hole for the first shaft at the Covington mine was completed to a depth of 235 ft. within four days of the start of operations. The reaming process, with a 7 ft. diameter reaming bit, which began immediately, was completed within 37 days.

Removing Cuttings

The problem of removing cuttings from the hole was handled by means of centrifugal pumps that pumped out a mud-laden fluid that held solids in suspension even when drilling was stopped. The drilling fluid, made by mixing natural clays with water, was circulated downward through the inside of the drill stem and upward through the annular space between the drill stem and the walls of the hole until it reached the surface to be discharged into slush pits.

After reaching the 235 ft. depth the drilling and reaming tools were removed and the job of placing the 75-inch-outside-diameter casing of ½ inch steel plates, welded in circular sections got under way. Each section, 21 feet in length, was raised into a derrick by means of specially designed casing elevators and lowered into place. On completion of placing of the casing a cement seal about the steel casing was formed by pumping the slurry from 2,100 sacks of cement into the annular ring between the outside of the casing and the wall of the hole.

Need for such a technique, of course, would not find as wide a demand in the

• A dump containing hundreds of feet of solid cores taken from the 1200 foot shaft of the Zenith iron mine in Minnesota is mute evidence of an extraordinary materials handling technique that may eventually prove revolutionary in the job of sinking mine shafts.

• A core, after being drilled and broken loose, is easily hoisted out of the mine shaft to make way for the next operation.

mountainous regions of the West where ore bodies often have to be reached through solid rock as at the Idaho-Maryland mine.

In such cases increased use of the technique originated by Newsom can be expected during the postwar period. From a materials handling viewpoint the method used at the Idaho-Maryland mine differs in the way in which the material is removed from the bottom of the shaft. Instead of being pumped out it is removed as a core.

A core barrel 15 ft. long is attached to the lower end of a splined shaft. On the lower end of the barrel is the cutting ring. Cutting is done with chilled steel shot. The upper end of the shaft, directly above the top of the core barrel, enters a little cabin in which are housed the driving mechanism, controls and a place for the operator. When lowered into the drill hole the cabin is held in place at the proper level for drilling operations by means of six screw jacks which fasten it securely in place against the walls of the shaft.

After drilling until the core is cut to the required depth the drill cabin is removed from the hole. The cuttings and any accumulated water are bailed out, the core is broken off and hoisted out, and, except for cleaning up operations, everything is ready for the drilling equipment to be lowered again for start of another cycle.

Possibilities for economical sinking of mine shafts by such means are apparent when it is considered that even in the first shaft to be sunk in this way the work was carried on at a speed of 150 ft. in one 30-day period. In another operation carried on in boring a 1200 ft. hole 5 ft. in diameter at the Zenith iron mine in Minnesota, with equipment, redesigned by Newsom and worked under his direction, speeds of 240 feet-a-month were attained by a two-man crew.

To date the deepest shaft drilled by this method is one 5½ ft. in diameter sunk through granite for 2,500 ft. at the Carey mine in Wisconsin during 1944. After completion the shaft was subsequently enlarged to a multi-compartment shaft. Spoil from the enlarged cross-section was blasted into the central hole and drawn off at the bottom, thus eliminating mucking. This job was also supervised by Newsom during the sinking of the first 500 ft.

From the success attained in sinking the shaft at the Covington mine and those at the Idaho-Maryland, Zenith and Carey mines, involving extremely different types of ground, it is apparent that further adaptations of the drilling-boring techniques can be expected in the future with its emphasis on economy that rising costs will bring.

California Manufacturers Group Forms

CALIFORNIA is to have a full-fledged manufacturers organization to be known as the California Manufacturers Association, as the result of consolidating the old lobbying association of that name with the Aircraft Parts Manufacturers Association.

Kenneth T. Norris of Norris Stamping & Manufacturing Co., Los Angeles, who has been much in the limelight in the last year through his work as chairman of the steel committee of the Western States Council, is president. A. J. Brechtel, manager of Aircraft Parts, becomes general manager of the new organization, with headquarters in Los Angeles, and John A. Pettis, manager of the former California Manufacturers, is general counsel and will be located in the San Francisco office. Presidents of the parent organizations, Hayward C. Thomas of the aircraft group and O. H. Fischer of the other, are on the board of directors of the new set-up.

"It will be the policy of the association to promote solidarity between Northern and Southern California and the elimination of sectionalism between the two areas, which in the past has been harmful to California enterprise as a whole—a lesson learned only too well during the war," announced K. T. Norris.

"The East is still reluctant to concede that California has developed an industrial area second only to Detroit, and they still cherish the hope that we will revert to oranges and tourists, now that the urgencies of war are no longer with us. Instead, California manufacturers are determined not only to hold the gains made during the war, but to continue the forward progress which has been so evident in the past."

Policy of the association also includes presenting a united front on equalization of freight rates and lending support as a united group to the steel committee of the Western States Council "now seeking a more abundant and lower cost supply of steel, so as to put Pacific Coast production on the proper competitive basis."

Service to members will include a technical staff to supply information on remaining war legislation, taxes, wages, hours, insurance, legislation and other questions.

The other officers of the association are:

First Vice President: T. W. Norris, Coast Manufacturing & Supply Co., Livermore, California.

Second Vice President: M. B. Pendleton, Plomb Tool Company, Los Angeles, California.

Secretary: John Parker, American Marine Paint Co., San Francisco, California.

Treasurer: Emerson Spear, Pacific Wire Rope Co., Los Angeles, California.

In addition to the above officers, the following constitute the board of directors:

Los Angeles: W. J. Boyle, O'Keefe & Merritt; John B. Rauen, U.S. Spring & Bumper Co.; J. B. McDonald, McDonald Manufacturing Co.

Pasadena: H. C. Thomas, Clarke Aero-Hydraulics, Inc.

Lynwood: T. T. Arden, Grayson Heat Control Co.

Torrance: E. R. Doak, Doak Aircraft Co.

San Francisco: Alexander de Bretteville, J. D. & A. B. Spreckels Co.

Oakland: O. H. Fischer, Union Diesel Engine Co.; J. R. Millar, National Automotive Fibres.

Alameda: A. C. Carrington, Miss Saylor's Chocolates, Inc.

San Jose: Paul Davies, Food Machinery Corp.

Napa: H. H. Sawyer, Sawyer Tanning Co.

Stockton: J. D. Grant, Stockton Iron Works.

Electrolytic Domestic Manganese Proves Superior

Pure electrolytic manganese produced from low grade domestic ores has definite advantages as a substitute for low-carbon ferro-manganese in the manufacture of stainless steel, according to Dr. R. R. Sayers, director of the Bureau of Mines.

The announcement was made on the basis of cooperative tests carried out with the Rustless Iron and Steel Corporation of Baltimore, Maryland and the Universal Cyclops Steel Corporation of Bridgeville, Penna., acting in conjunction with the Bureau of Mines pilot plant at Boulder City, Nevada which produced the electrolytic manganese.

Results of the tests show decided advantages for electrolytic manganese in meeting low maximum specifications for phosphorous and carbon. Despite the present higher costs electrolytic manganese is already being used exclusively by one firm. Reductions in price can be expected when the metal is produced on a larger scale.

Relief Plans Must Avoid Politics To Be Successful

German Relief Engendered by Group of Southern Californians Is Touchy Subject in Nation's Capital

By ARNOLD KRUCKMAN

One of the best-informed writers at the Nation's Capital, Arnold Kruckman, presents each month authoritative comments on political developments and their practical application to industry of the West. Any reader who wishes additional information may write to him directly, using business letterhead, at 1120 Vermont Avenue, N.W., Washington, D.C. Inquiries will be answered free of charge. You also are invited to contact him personally in Washington. Copies of pending congressional bills may also be obtained free of charge.

WASHINGTON, D. C. — This reporter frequently receives letters, telegrams, telephone calls, and personal visits from business people of the West slope—and elsewhere, incidentally—who pay him the compliment of thinking he can give them counsel about problems that head-up somewhere in the Federal Government in the Capital. Occasionally these questions involve serious considerations.

Western Industry naturally desires to supply sincere and sound advice. The service is given readily as a courtesy. But when the requirements appear predominantly professional, or technological, it is suggested that expert counsel will be more useful; or when the detail of the follow-up appears to run into the expenditure of an unusual amount of time, there are in the Capital qualified, competent and reliable persons who may be employed for the task.

Counseling Service?

This reporter is able to suggest the names of a number who are competent, and with whom the person who needs help may himself negotiate. It is deemed a violation of the code, however, which governs relations of correspondents accredited to Congress and the White House, for a correspondent in the Capital to have any professional relation to the affairs of Government except that of a trained observer and reporter.

Point is given to the foregoing discussion by a recent experience. A group of substantial business men in Southern California, of German racial background, decided to supply some relief privately to the millions reported to be starving in Germany. The Southern Californians presumably secured a considerable sum by subscriptions, and incorporated a philanthropic organization to sponsor the relief. This happened shortly before the holidays while the spectacular trials were going at full blast in Nurnberg.

Revelations coming from the trials, and from other sources, were placing the Germans very low in the scale of human acceptance in the Capital. It was the time when millions of sincere people in the United States were genuinely convinced it would serve mankind best if the Germans in Europe all were allowed to die. They held, and many still hold, that the race should be exterminated on the same principle that we destroy mad dogs, or infected rodents. And there was, and still is, some of this thought in the Congress itself, as well as in the administrative departments of the Government. The President himself remarked, when he saw the terrible destruction of German communities, "Well, they asked for it." Which is incontrovertibly true.

Californians to Rescue

The representatives of the Southern California business men got in touch with this correspondent. They sent a representative spokesman to the Capital. The spokesman arrived about the time Byron Price published his report, urging that some relief be arranged for the German people. Almost simultaneously Senator Eastland, of Mississippi, made a powerful plea along the same general lines in a notable address in the Senate.

This correspondent made clear to the representative of the California group that the undertaking was far too delicate, required too much study and careful thought and counsel, to be a subject for which the correspondent could accept responsibility, even as a casual counselor.

It was suggested the approach to the Federal Government should be the result of a carefully considered plan, guided by a competent counselor in the Capital, some person in whom Government officials would have confidence. It was further urged that above all, politics should have no place in this proceeding, particularly any political pressure involving the use of the hyphenate, which would be an affront to other Americans.

Hyphenated Americans

This correspondent has had a life-long antipathy to hyphenated Americanism, German-Americans, or any other kind of hybrid Americans. It has always seemed that an American is either an American, wholly, unhyphenated, and free of implied racial ties, *or he is not an American.* In this particular case, it seemed to this correspondent, the relief should be supplied by Americans whether of African background, Colonial New England background or any other.

If the object was to get relief to Germany, it should be immaterial where it came from. After all, the Germans, formally, are still our enemies, and the task of dealing with enemies who also are enemies of your Allies is difficult enough without further complications.

While the California group was negotiating in the Capital, a Congregational clergyman circulated among the Senators an appeal to the President to open the channels for distribution of relief in Germany. Unreasonably, the California group was blamed for this embarrassing gesture of pressure, with which they had nothing to do.

Not long thereafter a group of men representing German-American organizations in other parts of the United States joined the California representative in the Capital, and made their headquarters in a less well known hotel, choosing the hotel "because it has been owned by members of the same German-American family since George Washington's time."

Racial Pride OK

The Capital sympathizes with normal racial pride; but shies away from political ineptness. At about the same time word reached the Capital that some Southern California radio stations had broadcast intimations linking some German relief movements with the reason for earlier crusades against alleged Nazi sympathizers. Recently, the "German-American" relief program had its final setback when the President declined to move to open the mails to send packages to Germany.

There are, however, religious organizations such as the Quakers and the Catholics and the Lutherans, who are approaching the solution without politics and without fanfare. There is also a combination of fifty or more voluntary relief organizations of all kinds almost ready to begin operation under the corporate name

KRUCKMAN *(Cont'd from pg. 45)*

of Cooperative American Remittances for Europe—usually abbreviated to CARE, and headed by Donald Nelson. The organization has such complete approval from Government that its full-time director has his office in the headquarters of the President's War Relief Control Board. There is little doubt some relief will soon go to Germany, but it will undoubtedly be American, not hyphenated relief.

Maury Maverick, the spectacular Texan, recently returned from China, is expected shortly to hang out his legal shingle in the Los Angeles office of a well known lawyer in Southern California. They tell us here that a nomination for Congress is so easy in California, and that residence is such an insignificant part of the qualification, that apparently some of Maverick's friends have almost convinced him he might go out and qualify for the next election.

They always prove their case here by telling you with much detail how Helen Gahagan Douglas came from Brooklyn, settled briefly in Beverly Hills, and while living outside of Los Angeles, had herself elected to Congress from a Los Angeles district. Our British friends often elect their people to Parliament that way. The interesting Maverick, scion of the family which gave its name to stray cattle, has been Congressman, Mayor of San Antonio, and was one of the brass hats briefly in WPB under Donald Nelson, finally becoming the head of the Smaller War Plants Corporation.

W. W. Hubbell, of the Beverage Unit of the Department of Commerce, reports word from John Kobler of the American Embassy in Paris that American wine makers may expect active and immediate competition from France. The wine industry is the only major industry in France able to export both from stocks and from new production. Moreover, recent adjustment of the rate of exchange enables the American importer to buy twice as much wine for a dollar as he was able to obtain a few months ago.

From Robert W. Rinden, Second Secretary of the United States Embassy, in Canada, Commerce Department brings the word that the Dominion is planning feverishly to capture a large slice of the tourist trade which in pre-war years came to an average annual income of $132,000,000. The Canadians are striving to have ready as soon as possible new roads to take them into new scenic sports, into new hunting grounds. They are building fine sanitary tourist cabins and lodges, making the highways far safer, improving direction signs, and providing other conveniences, for visitors. Along the Alaska Highway, 10,000 acres have been set aside for development as a park with special recreational facilities; and "flight strips" to be located adjacent to this and other highways for the use of light aircraft are being planned.

Pasadenans, Army Develop Jet Engine

A jet propulsion engine, utilizing the principal of the German V-1 buzz bomb engine, is being developed as a research project by the U.S. Army Air Technical Service Command, with G. M. Giannini & Co., Inc. of Pasadena as co-developers. The American version is not only applicable to super-sonic speed planes but also has other potentialities now being explored.

Two aeronautical engineers, A. J. Klose and W. B. Goodman, of the Giannini organization, made careful analysis of the first German V-1 buzz bomb projectiles received in this country, then set out to produce an American propulsion unit of superior characteristics. They are working with the U.S. Army Air Forces at Dayton, Ohio.

The engineers state that this small test model of 2 lb. thrust, which is but four one-thousandths of the size of the V-1 engine in capacity, works perfectly in every respect and, pound for pound, is superior in many other ways to the German propulsion unit. The diminutive engine is but 2 feet in length and is approximately 2 inches in diameter. It is made of aluminum alloy and stainless steel and weighs only 5 ounces.

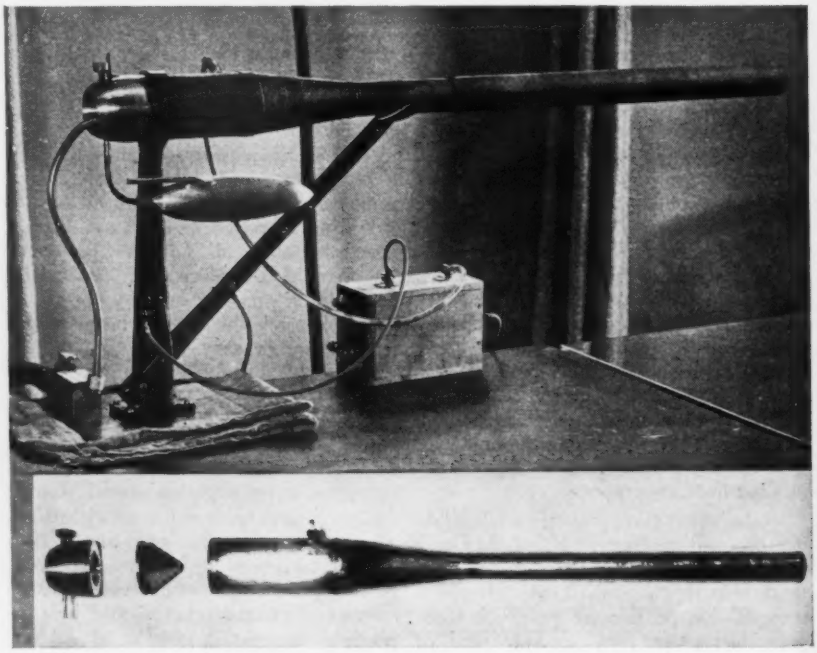
Its efficiency is so great, that with a small light-weight fuel tank, this engine, launched from an inclined plane, would fly through the air without the necessity of wings. The engine is fully controllable, burns gasoline or kerosene and, after once being started by means of a small spark-plug, will run until fuel is exhausted without ignition being necessary.

The engineers claim considerably greater efficiency for the Klose model over the German prototype by reason of more thrust, less weight and smaller size. The American model also fires many times faster than the German engine, thus developing more power. The wind tunnel model, for instance, when operating at full throttle, fires several hundred explosions per second.

One of the problems yet to be solved in jet engine construction, according to Mr. Klose, consists of the control of sound, since attempts to muffle jet engines have resulted in great loss of efficiency.

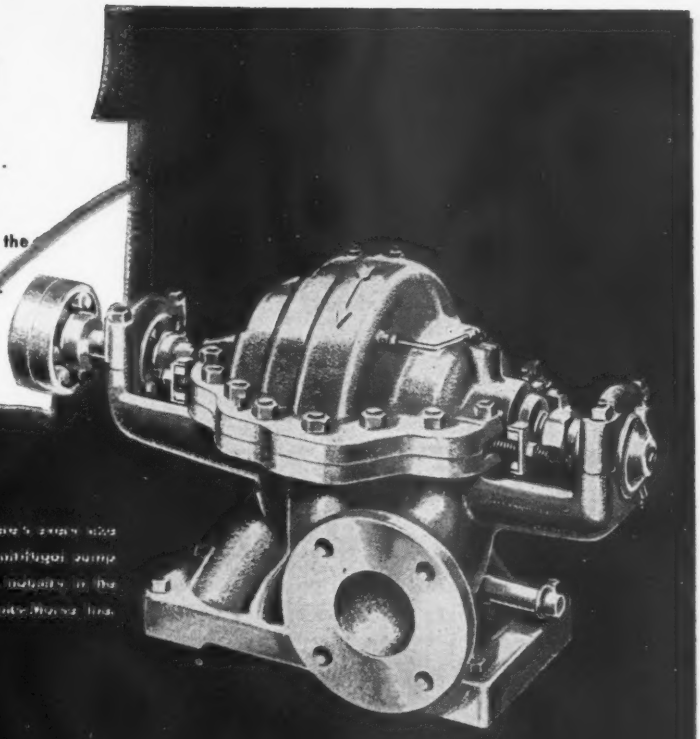
Gabriel M. Giannini, president of the company, states that complete tests have been run on many sizes and models of this spectacular propulsion unit. Military and commercial development is awaiting further decision by the Army Air Forces.

• Pound for pound, the diminutive jet engine shown below is far superior to those originated by the Nazis. It turns out greater thrust with less weight and smaller size. Experiments conducted with it reveal other potentialities than powering super-sonic planes.

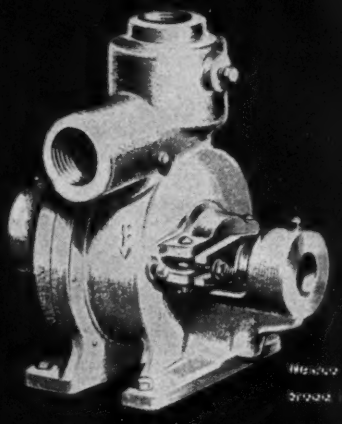


Can ANYONE make a Pump?

Well, there's no law against it—except perhaps the "law of survival." It's a question of what *kind* of pump you want—and how good you want it to be. If you want a pump that will squeeze the last fraction of a cent in value out of the monthly power bill, that is designed to the very limits of hydraulic knowledge—built with the fine tools and complete facilities that such precision design requires—you'll want a Fairbanks-Morse pump.

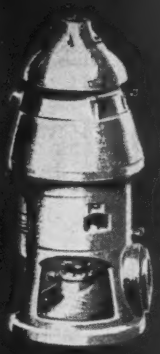


There's every size and type of centrifugal pump used in industry in the Fairbanks-Morse line.



WHEN YOU BUY a Fairbanks-Morse, Fairmont or Wesco pump, you get a design which is the result of accumulated years of research in not only our own laboratories but those of the universities' scientists whom we have retained.

Wesco pumps: precision-built, broad in application.



For all vertical turbine pump work—the Pomona line.

THIS DESIGN and unlimited manufacturing facilities, which only the largest pump manufacturers can offer you, combine to give you pumps superior in performance and reliability.

ANYONE CAN MAKE A PUMP—perhaps! But for proved value, skilled service—regardless of the type of pumping requirements or the amount of liquid to be moved—Fairbanks-Morse is an unquestioned leader. Call your nearest Fairbanks-Morse distributor or branch office.

FAIRBANKS-MORSE

A NAME WORTH REMEMBERING

PUMP DIVISION

New Program For Columbia

COLUMBIA Empire Industries, Inc., which spread its influence during the war years from the immediate Columbia river territory to virtually all of Oregon and southwestern Washington, has added concrete action to its announced policy of becoming a real area group rather than one centered around the metropolis of Portland.

For the first time, it has elected a president outside the City of Portland. He is Lloyd Riches, vice president and general manager of the Western Paper Converting Company at the state capital, Salem. He succeeds Thomas C. Young of Portland. Directors now are widely scattered in the Oregon and Washington territory embraced by the industries group.

Other new officers heading Columbia Empire Industries, Inc., in 1946 are P. E. Hodel, first vice president, president of Huntington Rubber Mills, Portland; J. A. Brewster, second vice president, manager of Chase Bag Co., Portland; and H. H. Pein, secretary-treasurer, president of Pein Box Co., Oregon Ltd., Portland.

Plans are being laid for establishment of industrial clubs in upstate communities that now have directors and a three-fold program has been outlined for the first post-war year.

It includes resumption of publicizing Columbia Empire products, continued interest in national and state legislation affecting business and industry and increasing attention to labor trends on a fact-finding basis that would aid labor-management cooperation.

Tree Planting Tool Speeds Reforestation

Invention of a spade-like tool that costs only $20 retail is revolutionizing the task of reforesting burned or denuded areas in the Pacific Northwest.

Devised by Sam Miller, an Oregon state forestry land department expert, the tool has more than doubled the number of seedlings that can be set out by a worker in

• Tree Planter.

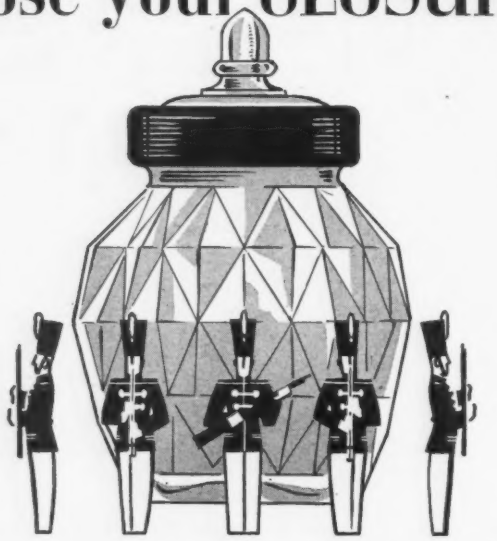
the traditional methods. This means that better than 1400 seedlings can be planted each day by a man using the Miller tree planter.

The instrument looks very much like a spade with the blade compressed to an inch by two-inch-square finger with one foot rest eliminated. There are only three moving parts. In the grip is a trigger-handle concealed so that it will not brush against the operator's side while walking. A toggle arrangement, tripped by a spring inside the hollow handle, trips the kick-out bar.

Operation consists of placing a seedling, root first, into a small slot in the blade placed point down on the ground. A step on the foot rest then drives the blade about eight inches into the earth. The tool is then tipped back, and a compression of the trigger grip ejects the tree from the slot and pulls the tool from the hole. The operator then tamps down the earth about the seedling and goes on to the next spot.

The instrument was first made and tried out in 1943. Since then four models have been evolved, the latest having proved so satisfactory that it is expected to go into extensive production in the near future.

Choose your CLOSURE...



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Protection is the first duty of your closure. Keeping in the goodness you put inside, presenting an impassable barrier to impurities, guarding against the invasions of prying or tampering fingers . these are the all-day, every-day assignments of any closure. You can rely on the unbiased recommendations of I. F. SCHNIER Company's closure specialists to insure these qualities in your closures and still to satisfy the consumer who wants attractive and "easy-to-open" packages.

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DU PONT CEL-O-SEAL Caps and bands, one of I. F SCHNIER Company's complete line, give extra protection and added appeal to packages because they're impact-resisting, yet easy for the ultimate consumer to strip off the moment the product is to be used.* *REG. U.S. PATENT OFFICE

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THE MOST COMPLETE LINE OF CLOSURES IN THE WEST

WESTERNERS AT WORK...

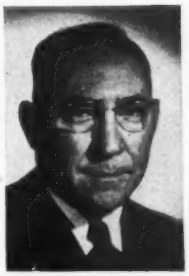
Arizona

Lt. Col. George F. MacDonald, well-known Arizona military figure and former state legislator from Santa Cruz, named to fill unexpired term of **William Peterson** as member State Corporation Commission.... **Thomas H. Murray** promoted to gen. freight and passenger agent for Santa Fe Railroad system when organization re-classed Arizona as separate zone for railway business....

H. J. Byers upped to manager of Phoenix branch of General Petroleum Corp.... **Ralph B. Howard,** asst. treas., Goodyear Aircraft Corp., Litchfield Park received 30-year service pin.

Thomas Thompson appointed mill supt. new 400-ton copper-lead-zinc mill now being completed by Phelps Dodge Corp., Warren; **J. K. Sellers** named metallurgist on new milling staff.... **C. R. Kuzell,** director of labor relations and consulting metallurgist, became asst. gen. mgr. of Phelps Dodge Corp. outfit at Douglas — formerly director of l.r. at United Verde Branch at Jerome. **G. C. Davis,** who succeeds Kuzell as labor relations director, is mgr. of Morenci Branch of Phelps Dodge. **L. M. Barker,** gen. mgr. of New Cornelia Branch at Ajo, steps into Davis' former job. **W. C. Lawson** apptd. gen. supt. of Morenci Branch mines division and **William P. Crawford,** mine supt. of Copper Queen Branch, mines division, Bisbee, becomes asst. gen. supt. of Bisbee property.

California



George F. Ashby

George F. Ashby assumed duties as president of Union Pacific succeeding **William M. Jeffers** who retired as pres. Feb. 1. Jeffers continues as member of board of directors. Ashby been with Union Pacific since 1911, and a v.p. since Aug. 1, 1941 serving as exec. v.p. and director....

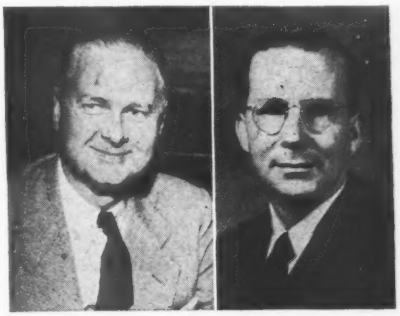
Howard G. Vesper, mgr. of gasoline and fuel oil division of Standard of California, elected pres. of California Research Corp., Standard's research subsidiary, succeeding **Ralph A. Halloran** who retires after 26 years as head of research.... **J. Platt Cooke** of Honolulu, v.p. and gen. mgr. of Alexander & Baldwin, Ltd., made director of Matson Navigation Co., succeeding late **John Waterhouse**....

Lee W. Delhi (recently elected pres. California Metals Trade Assn.) v.p. charge of operations, Western Pipe & Steel Co., resigns to become partner in Hunt-Mirk & Co., coastwide engineering firm....

Myron A. Bantrell, pres. of Filtrol Co. of California, Los Angeles, elected chairman of board; **Wright W. Geary,** re-elected pres.; **Roy W. Johns,** gen. counsel, Atlantic Refining Co., Phila., elected v.p., and **C. V. Zeller,** sec. treas....

Robert S. Donaldson, former public relations co-ordinator, Lockheed Aircraft Corp., now regional mgr. of Committee for Economic Development for Pacific Southwest area, succeeding **Lloyd A. Williams,** now regional adviser.... **John Shafer,** asst. gen. sales mgr., Hawaiian Pineapple Co., Ltd., elevated to asst. v.p....

Robert A. Trumpis, partner in firm of Trumpis-Collar & Associates, Los Angeles, named national pres. of American Society of Industrial Engineers, and will set up office of society at 2511 Wilshire Blvd., Los Angeles, where Trumpis and Collar are now located....



Joseph L. Turner Dr. Charles O. Persing

Joseph L. Turner, San Francisco, upped to director of Industrial Relations, Columbia Steel Co., succeeding **Henry T. Lintott,** resigned. Turner has been in steel business since 1928.... **William P. Schwindt** named asst. v.p. and sales mgr. of **Calaveras Cement Co., A. A. Hoffman,** consulting engineer, **Lewis A. Parsons,** consulting technologist, and **M. J. London,** traffic mgr....

Dr. Charles O. Persing joins Agricultural Research Staff, Pacific Coast Division of Stauffer Chemical Company, Richmond. Has been with University of California Citrus Experiment Station at Riverside....

Charles W. Perelle, gen. mgr. of **Howard Hughes'** aircraft plant in Culver City, has resigned as v.p. of Hughes Tool Co. and as gen. mgr. of its subsidiary in a shake-up at the plant. Also leaving are **Joseph W. Hennen,** asst. gen. mgr.; **Clifford Sharpe,** prod. mgr., and **Clinton Erb,** auditor.

Rex T. Bloom, Los Angeles, appointed director tax department California State Chamber of Commerce.... **Ralph G. Dabadie** named mgr. of Meyers Safety Switch Co., Inc., electrical mfrs., San Francisco; **Jack Tiscornia** also joined organization....

Charles E. Moore has sold interest in Joshua Hendy Iron Works and resigned as pres. of company. **John A. McCone** replaces him as pres.... **Alfred L. Ransome,**

• Westerners W. H. Conklin, production mgr., with pick, and E. C. Bishop, gen. mgr., with shovel, break ground for new administration building and warehouse of Premier Oil & Lead Works, Los Angeles. Officials of The Austin Company, builders, who watch officials in soil turning action are left to right, G. A. Bryant, president; Gordon Galloway, project manager; A. F. Plant, Detroit manager, and R. E. Ward, Los Angeles manager.

WESTERNERS AT WORK...

lead and zinc economic specialist in Washington office, Bureau of Mines, designated supervisor of San Francisco office of Bureau of Mines. . . .

Sweeping changes in Accident Prevention Bureau staff of Waterfront Employers Assn. of Pa. Coast in San Francisco District and Coast headquarters office were effective Jan. 1, when **J. H. (Joe) Travers,** (Lt. Col. in U.S. Army) returned as asst. mgr., replacing **J. R. (Bob) Snyder; Stanley C. Davis,** a "war loan" to Matson Navigation, returned as district supvr., succeeding **John C. Evans** who transferred to So. Calif. district as associate supvr. to **Frank (Tim) Regan,** district supvr.; **Ralph W. Netterstrom** doffs uniform as lieutenant, U.S. Navy, to return as assistant district supervisor.

V. C. Schorlemmer J. H. Cox

J. H. Cox made engineering mgr. of Westinghouse Electric Corp.'s Pacific Coast Manufacturing and Repair Division, Emeryville, Calif. He is member of American Institute of Electrical Engineers and American Physical Society. . . . **V. C. Schorlemmer** upped to v.p. in charge of finance of Consolidated Vultee Aircraft Corp., succeeding **Francis A. Callery,** resigned. Schorlemmer was controller for co. since March, 1943.

George Stephan, exec. director, FHA at Paso Robles, Calif., elected pres. region 6, Pacific Southwest regional Council of Natl. Association of Housing officials. . . . **Clay P. Bedford,** now v.p. in charge of manufacturing at Willow Run, Mich., for Kaiser-Frazer automobiles. Bedford succeeds **Vern R. Drumm,** resigned. Bedford constructed and operated the Kaiser Richmond shipyards. . . .

A. E. McIntyre, Nordstrom Valve Division, Rockwell Mfg. Company, Oakland, elected chairman of California Metal Trades Association, East Bay Division. . . . **C. N. Maxfield** apptd. California district mgr. for Yarnall-Waring Co., Philadelphia. . . . **Charles Clarke,** formerly chief product engineer, Air Research Mfg. Co., division of Garrett Corp., Phoenix, Ariz., promoted and transferred to main plant in Los Angeles in same capacity.

Clyde Williamson, San Francisco mgr. for Hagan Corp., presented with Certificate of Appreciation from War Shipping Admr. for help given in cadet-midshipman training program—first Pacific Coast man to receive this recognition. . . . **Marshall Lasher** named as asst. to **W. W. Glosser,** v.p. of Hubbard and Co., Pacific Coast Division, with offices and Western plant located at Oakland, Calif.

Arthur A. Center, leaves Dept. of Mining and Metallurgical Research of University of Utah, to new appointment with metallurgical engineer by California State Division of Mines, with headquarters in the Ferry Bldg., San Francisco. New job will be to survey market possibilities for California minerals.

Lt. Col. Charles M. Cross doffs uniform to return as geologist in Geological Dept. of Tide Water Associated Oil Co., San Francisco. . . . **L. R. Boling,** controller of Oliver United Filters Inc., Oakland, elevated to treasurer; **Edwin L. Oliver, Jr.,** son of President, to secretary, continuing as asst. to exec. v.p., **P. A. Hoyt.** . . .

Five new executives added to staff of Ellinwood Industries, Los Angeles: **Orrin Broberg,** chief engineer of marine equipment division; **Colin Chambers,** sales mgr. furnace brazing and heat treating; **D. W. Morgeson,** supt. of farm equipment division; **Palmer Wentworth,** personnel mgr., **John H. Williams,** project engineer with farm equipment division and **Foster M. Gruber,** admr. asst. to **Ray Ellinwood,** pres.; Gruber was formerly production engineer for Douglas Aircraft. . . .

G. A. Higgins now mgr. of Douglas Aircraft Co.'s Santa Monica plant succeeding **H. E. Guerin.** . . . **Capt. George T. Paine,** USN, commander of Terminal Island Navy Shipyard, promoted to rank of commodore. . . . **Henry C. Baumgartner** elected director and secretary of Plomb Tool Co., Los Angeles, succeeding **James E. Mills** who retired because of illness. . . .

C. W. Jones, asst. sec. and treas. of Santa Fe Railway, succeeded by **A. O. Appel,** former deputy asst. treas., Los Angeles, when he retired Jan. 1. Had been with company more than 55 years. Appel joined the Santa Fe in 1907. . . .

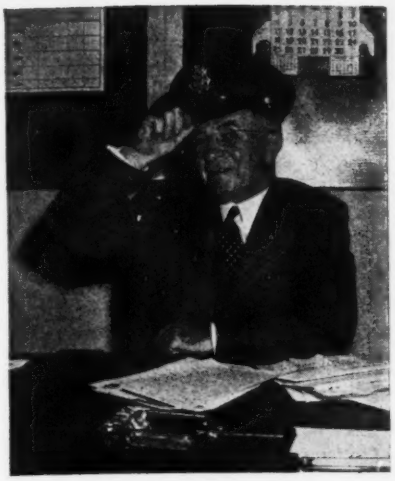
Colorado

A. D. Cottingham, Denver, succeeds **Henry J. Miller,** retired, as purchasing mgr. of Great Western Sugar Company, Denver. Miller, mgr. for 40 years, retired Dec. 31. Cottingham had been asst. purchasing mgr. since 1942, and with G-W since 1909. **Carl R. Roberts,** back from service as Lt. Col. in U.S. Army Air Corps, is acting asst. purchasing mgr. . . .

George C. Getgood, Tulsa, Okla., comes to Denver as special representative of crude oil purchasing dept. of Standard Oil (Indiana) company, opening local offices Jan. 1. . . .

Frontier Refining Co., Cheyenne, has moved following key executives to Den-

• Getting together at the NAM meeting in New York in December are Westerners Paul B. McKee, pres., Portland Gas & Coke, regional v. p. for 1946 for Pacific Coast; L. R. Campiglia, pres., California & Hawaiian Sugar Refining Corp., Ltd., San Francisco, elected new director; Charles E. Moore, pres., Moore Machinery Co., San Francisco, and Ernest G. Swigert, pres., Hyster Co., Portland, director. Other Westerners newly elected: G. H. Garrett, Denver, Colorado; F. D. Williamson, Spokane; T. J. Bannan, Seattle, Washington; L. T. Murray, Tacoma, Washington; and Dean Johnson, Portland, Oregon.



• Trying on the new hat he will wear as Chief of Rail Transportation for the War Department in Berlin is H. G. Warvel, asst. chief of Personnel for Denver & Rio Grande Western Railroad, at work at old position.

ver: **M. H. Robineau,** pres., who will divide time between Cheyenne and Denver, supervising Frontier's production department, succeeding **Dr. Ben H. Parker,** now pres. of Colorado School of Mines; Robineau will be assisted by **Robert McMillan,** Dr. Parker's former asst.; **H. E. Armitage,** v.p. in charge of administration, will head Denver office. Company's gen. offices remain in Cheyenne.

Idaho

J. C. Keiffer, Osburn, succeeds **Donald A. Stewart** as mgr. of Sunset Minerals mine on Pine Creek. near Kellogg; Stewart goes to Nome, Alaska, to become mgr. of a gold property. . . .

Two directors added to board of Morrison-Knudsen Co., Boise, when board increased to nine members are: **Col. M. E. Burns,** former supt. of M-K's railroad division in midwest; and **C. P. Dunn,** v.p. and company's chief engineer. . . .

Montana

G. R. Haglund, long time sales mgr. for H. Earl Clack Co., Havre, independent distrib. of petroleum products and automotive supplies, promoted to gen. mgr.; Clack continues as pres. and chairman of board. **L. B. Wigmore** advances to gen. sales mgr., **K. H. Lokensgard** to mgr. of hi-line district; **C. B. Loe,** former mgr. of eastern district at Glasgow, transferred to central Montana district where he becomes mgr., and **Andy Bernard** succeeds Loe at Glasgow. . . .

A. V. Taylor, Jr., resigns as mines geologist, U.S. Smelting, Refining and Mining Company, Salt Lake City, and **Sanford R. Knapp,** as director of material supply for British Air Commission, to devote entire time to Taylor-Knapp Co. which operates various Montana mining operations. . . .

Thomas J. Brennan casts aside role of lieut. col. to resume position as trainmaster

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METAL SPOKE WHEELS • GEARS AND FORGINGS • RAILWAY TRUCKS

• Executives of National Motor Bearing Company, Inc., Redwood City, Calif., makers of the oil seal, take to air to speed postwar operations in their auxiliary plants in Ohio and Vernon, Calif., eliminating time lost in traveling. D. O. Johnson, v. p.; Ken Brooks, in charge of production; L. A. Johnson, pres.; Marshall George, pilot, and Milton Bulkeley, treas. and comptroller, are pictured in front of their plane, the "Flying Seal."

of Havre division of Great Northern Railway; **M. J. Sommers,** now serving at Glasgow, returns to transportation job at Great Falls.

Nevada

E. N. Pennebaker, for many years chief geologist, Consolidated Coppermines Corp., Kimberly, goes to South Africa to conduct geological survey of properties of O'Okiep Copper Co., Ltd., which concern is controlled by Newmount Mining Corp. and American Metal Co., Ltd.

New Mexico

William J. Rogers, Fort Worth, Tex., named regional director wage and hour and public contracts divisions of U.S. Dept. of Labor; heading the 12th region composed of New Mexico, Texas, Oklahoma, Arkansas with headquarters at Dallas. He succeeds **Maj. Gus C. Street,** Houston.

John Campbell comes from Shattuck Denn Mining Company, Bisbee, Ariz., where he was chief chemist, to Peru Mining Co., at Deming. **Paul Durrett** succeeds Campbell at Bisbee. . . .

Oregon

C. E. Stipe, grain purchasing agent in Pacific northwest for Sperry division of General Mills, Inc., promoted to position of district mgr. for Sperry at Spokane. . . . **Thomas Stoddard,** Portland, doffs garb of a navy lieut. to return to work as v.p. of Commonwealth, Inc., Portland. . . .

Merton T. Owre, sec. mgr. of office of lumber industry commissioners, Portland, has opened his own offices as industrial relations counsel and adviser in the Corbett Bldg. . . . **C. H. Gueffroy** elected a v.p. of Portland Gas & Coke Co., to have charge of by-products sales and market investigations, rate and regulatory matters. . . .

Dean Johnson, Portland, and **August J. Stange,** La Grande, elected regional v.p.'s of National Lumber Manufacturers' Association. . . . **J. Elton Lodewick** appointed as forest products analyst for Bonneville Power Administration's division of industrial & resources development. Former chief of division of forest products

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PLATE GRIPS – Safe, positive grips in a variety of sizes for handling vertical plates or upending horizontal plates and assemblies.

PIPE TONGS – Heavy duty tongs for easy handling of pipe, billets, bars, timber. Locks in open position. Picks up from floor surface.

PLATE HOOKS – Handle one or more horizontal plates. Used in sets of 2 or 4. Two styles.

RAIL TONGS – Handles large or small rail. Two sizes with 3" or 4½" jaw.

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Electric Cranes ● Hand Cranes ● Jib Cranes ● Sheaves ● Sheave Blocks
Plate Grips ● Plate Hooks ● Crane Trolley Hoists ● Crane Wheels ● Crane End Truck Units ● Jib Crane Fittings ● Automatic Mechanical Load Brake Crane Hook Blocks

Off-balance bandsaws, caused by uneven flooring, often account for uneven cuts. Not so, however, where the Johnson Metal Cut-off Bandsaw is used. The exclusive 3-point base provides rigid anchorage. No matter how uneven the flooring, the Johnson Bandsaw sets solid, prevents irregular cuts.

Other Important Johnson Features

1. Thinner blade reduces metal waste
2. Box type frame protects movable parts
3. Four speeds provide right speed for every metal, hard or soft
4. Hydraulic control insures even pressure throughout cut
5. Coolant attachment minimizes friction, prolongs blade life
6. Automatic shut-off after cut is completed

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• New officers of Columbia Empire Industries, Inc., for 1946 are (foreground) H. H. Pein, Portland, secretary-treasurer; second row, Lloyd Riches, Salem, president, and J. A. Brewster, Portland, 2nd vice-pres., and rear, P. E. Hodel, Portland, 1st v. p.

for Pacific Northwest Forest and Range Experiment station in Portland. . . .

Philip B. Gilbert, gen. mgr. of Coos Bay Logging Co., elected pres. at annual meeting, succeeding the late **Albert Langrell; George M. Dutch** elected v.p., **Ben R. Chandler, Jr.,** elected sec. treas. . . . **Lt. Col. Harlan Bosworth** resumes duties as district mgr. California-Oregon Power Co., Klamath Falls. . . . **L. O. Arens,** Salem, recently elected pres. of International Association of Industrial Accident Boards and Commissions. . . .

Justin R. Laing appointed aviation representative for Oregon and southern Idaho by General Petroleum Corp. to aid communities in development of air centers by contributing plans and ideas. . . .

Newly named officers of Timber Structures, Inc., Portland, are: **John T. Schneider,** v.p. in charge of production at main plant at Portland; **Marcel Vogt,** mgr. of newly-formed production control department, Portland; and **R. B. Fehren,** v.p. in charge of sales. . . .

Mel Barron, supv. of Modoc National Forest, quits to become mgr. of Goose Lake Box Co., Lakeview, Ore., and Alturas, Calif.

Utah

N. E. McKinnon takes over as new gen. supt. of Bingham and Garfield Railway Corp., succeeding **F. O. Haymond,** who retired as v.p. and gen. mgr. McKinnon began his railroad career in 1903. . . . **Franklin D. Richards,** western director for FHA, upped to asst. commissioner in charge of field arrangements for FHA, Washington, D.C., **Walter L. Green** is new western director in charge of Zone Five, including Mountain and Pacific Coast States. . . .

Lt. Col. E. H. Ward, former Utahan chief of warehouse management section, storage and distribution division, office of the Quartermaster General, Washington, D.C., transferred to Army Service Forces Depot, Ogden, where he is chief of Stor-

(Continued on page 54)

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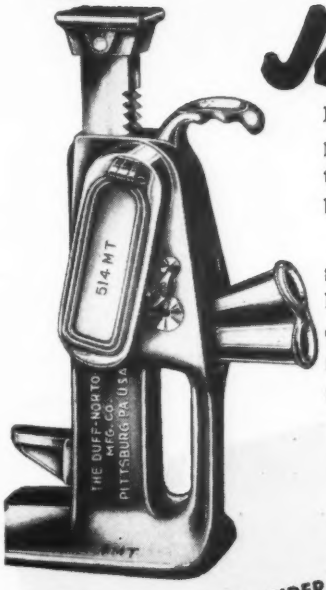

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Load to be lifted
Speed of lifting desired
Type of lowering
Height and "raise" required
Weight of the jack
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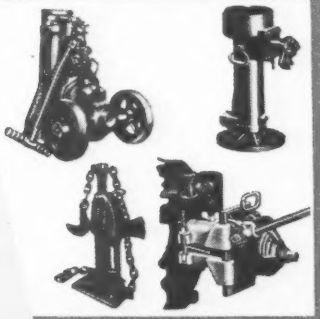
Outdoor or indoor application
Close quarters or unlimited room
Need for foot-lift
Cost



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WESTERNERS AT WORK...

• Robert E. Gross, Lockheed pres. (far left) gets certificate of achievement for the more than 1000 planes which were modified at the Navy Lockheed Service Center at Van Nuys, from Lt. Comdr. E. W. Shaw, Jr., (center) as James E. Boyce (left) and Reagan C. Stunkel and Carl B. Squier, company execs. look on at the ceremonies in So. California.

age Division, Quartermaster Supply Section.

Washington

A. F. Logan apptd. Director of Industrial Relations for Boeing Aircraft Co. succeeded **C. E. French,** who resigned to return to East Coast. Logan remains as asst. to Pres. **William M. Allen.** . . . **C. F. Roberts** (formerly with California Conserving Co.) named production mgr. of Butler Packing Co., Seattle, new plant at Oakland, Calif.; **E. P. Gesellchen** (also Cal. Conserving) sales manager. . . .

When **Robert S. MacFarlane,** v.p. of Northern Pacific, was upped to director of Northern Pacific, he became first director to serve from the Pacific Coast; MacFarlane for the last four years v.p. of the Seattle Chamber of Commerce was elected to presidency succeeding **Charles F. Clise.** . . .

K. M. Kennel, v.p. of Shaffer Terminals, Inc., and Terminal Warehouses, Inc., upped to presidency of Tacoma C of C. Kennel identified with shipping and warehousing business in Tacoma for last 23 years. . . . **Capt. Grant Dixon, Jr.,** returns from the army to position of general mgr. of Exchange Lumber & Manufacturing Co., Spokane, succeeding **Charles L. Coffman** who remains as v.p. and treas.

Robert E. Mattson, Spokane, doffs togs as Colonel in U.S. Army to resume job of asst. supt. of Idaho division of Northern Pacific railroad. . . . **Thomas Murphy,** Roslyn, upped to mgr. of coal operations of Northwestern Improvement Company, succeeding **D. R. Swem,** retired; **Earl R. McMillan** chief engineer and asst. mgr. will be in charge of Seattle office; **Charles H. Lewis,** asst. supt., succeeds Murphy as supt. . . .

E. H. Dye, exec. of Chamberlin Co., America, is new pres. of Washington State Chapter of Producers' Council, Inc. . . . **Fred C. Shaneman** named pres. of Pennsylvania Salt Manufacturing Co. of Washington, at Tacoma; has been v.p. since 1939. He joined organization in 1930 as salesman and asst. to mgr. of Tacoma, Wash., plant. . . .

A. L. Pollard promoted to gen. supt. of operations for Puget Sound Power & Light Co., Seattle. **W. N. Farquhar,** works mgr. for Aluminum Co. of America at Mead aluminum reduction plant, Spokane, becomes works mgr. for company's plant at Niagara Falls. . . .

Phil Giberson, Army dischargee, now production technician for Spokane, Wash., office of Marwood, Ltd. . . . **Christy Thomas** resigns from Seattle Chamber of Commerce to head activities in Washington, D.C.

Wyoming

Ray Dehority resigns as asst. mgr. of United Air Lines' Cheyenne, maintenance base and returns to private business in El Paso, Ill. . . . **M. M. Drake,** industrial engineer, joins Chamber of Commerce as secretary of the Committee for Economic

EDCO Yellow Shielded
Phosphor Bronze
ELECTRODES

18" length with Center Grip
14" length with End Grip

Edco yellow shielded electrodes have a soft, stable arc, low splatter, sound metal, and can be manipulated readily. The repair and fabrication of vital war equipment with Edco Electrodes have won them high praise from military personnel . . . Write or wire for your nearest distributor.

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Development, succeeding **Charles Niethammer** who resigned to become state representative Surplus Property Administration. . . .

G. C. Hollo, Wyoming architect, appointed chief architect on staff of FHA at Cheyenne; Hollo has been with army engineers during war and with the Bureau of Yards and Docks, Mare Island.

I. N. Bayless, pres. of Union Pacific Coal Co., moves his office from Rock Springs to Omaha, succeeding **Eugene McAuliffe** as pres. Southern Wyoming Utilities Co., Washington Union Coal Co., and Union Pacific Water Co., with headquarters in Omaha.

Associations Elect

New officers of Puget Sound section of American Chemical Society are: **Ted S. Hodgins,** chairman; **Herbert R. Erickson,** vice-chairman; **Joseph L. McCarthy,** sec.-treas.; new counsellors, **Vic Sivertz, W. R. Gailey** and **G. H. Cady.** . . .

Officers of the newly organized Greater Portland Management Club, Inc., are: **H. G. Helber,** Hyster Co., heavy industry, pres.; **L. J. Kollath,** Bingham Pump Co., light industry, first v.p.; **C. W. Lewis,** Standard Oil Co., petroleum industry, second v.p.; **M. D. Duffy,** Northwestern Electric Co., secy.; and **E. Bondurant,** Foundation Mills, textile, treas.

Officers of Western Forestry and Conservation Association: **Kenneth Walker** Red River Lumber Co., pres.; **Clyde Martin,** sec.; **Charles Gowan,** treas., and **Carl Husey,** asst. sec. and treas.

Ernest Klepetko elected chairman for 1946 for the Utah section, American Institute of Mining and Metallurgical Engineers; **W. H. Cramer,** vice-chairman; and **James A. Marsh,** sec.

Western Oil & Gas Association new officers include **H. D. Collier,** chairman of Standard Oil Co., of Calif., v.p., and **S. B. Mosher,** pres. of Signal Oil & Gas Co., a director. **Ralph B. Lloyd,** pres. of Lloyd Corp., Ltd., re-elected pres. for fifth term and **William Reinhardt,** v.p. of Union Pacific Railroad Co., re-elected a v.p.

Mining Association of Southwest re-elected **Howard Kegley** as pres. to serve for eight years; **H. W. Howe, John Herman** and **P. J. Osdic** were elected v.p.'s, and **Victor J. Hayek,** re-elected sec.-treas.

Officers of Northwest Scientific Association are: **H. T. Gisborne,** Missoula, Mont., pres.; **James G. McGivern,** dean of engineering at Gonzaga, v.p.; **G. Orien Baker,** University of Idaho, sec.-treas.

G. F. Twist, v.p. and gen. mgr. of Atlas Imperial Diesel Engine Co. named director of Diesel Engine Manufacturers Association.

William L. Montgomery, managing director, China-America Council of Commerce & Industry, Inc., elected pres. of Foreign Trade Assn. of San Francisco Chamber of Commerce; other officers: **Fred B. Galbreath,** first v.p.; **R. J. Roesling,** second v.p.; **L. I. McKim,** third v.p.; **P. A. Kinnoch,** treas., and **Alvin C. Eichholz,** secretary.

Northwest Frozen Food Association officers: **F. J. Becker,** Gresham Berry Growers, pres.; **T. E. McCaffray,** National Fruit Canning Co., Seattle, v.p.; and **E. M. Burns,** Portland, sec.

Northwest Mining Association new officers: **Wray D. Farmin,** Spokane, director in Day Mining companies in the Coeur d'Alenes, pres.; **Leo J. Hoban,** Wallace, sec.-treas. of Hecla Mining Co., **v.p.; Mrs. Margaret Orr,** re-elected asst. sec.

New officers, Rocky Mountain Oil Scouts, Casper, Wyo., often called the "eyes" of the oil business are: **Bert M. Brush,** Carter Oil Co., pres.; **Dave W. Sharp,** Atlantic Refining Co., v.p.; **Charles E. Titus,** Sinclair-Wyoming Oil Co., sec.-treas.; **Hal C. Walker,** Ohio Oil Co., editor-in-chief.

Utah Metal Mine Operators, Salt Lake City, Utah, elected **E. H. Snyder,** gen. mgr. of Combined Metals Reduction Co., pres., succeeding **F. A. Wardlaw, Jr.,** asst. mgr. of International Smelting & Refining Co.; **James W. Wade,** pres. and gen. mgr. of Tintic Standard Mining Co., elected first v.p., **O. N. Friendly,** v.p. and gen. mgr., Park Utah Consolidated Mines Co., second v.p., and **James Ivers,** v.p. and gen. mgr. Silver King Coalition Mines Co., third v.p., and **A. G. Mackenzie,** mgr.

Utah-Nevada Safety Society, Salt Lake City, Utah, elected **Edward D. Scherer,** pres.; **Ralph S. Kitchen,** v.p.; **Robert Addams,** sec.; **Clyde Sabin,** treas.

One of new members of SAE Council elected at association meeting in Detroit, **A. E. Raymond,** engineering v.p., Douglas Aircraft Co., Santa Monica, Calif. . . . SAE past president **Mac Short,** v.p. Lockheed Aircraft Corp., Burbank, elected life member.

Paul Stock, Cody, Wyo., elected director of American Petroleum Institute. Stock was re-elected pres. of Rocky Mountain Oil and Gas Association at its December meeting. Other officers named were: **James Donoghue,** Denver, first v.p.; **Fred Goodstein,** Casper, and **R. B. Curran,** Billings, Mont., second v.p., and **Gilbert J. Mueller,** Denver, treas. The group voted life membership in assn. to **E. J. Sullivan** and **Clarence Richardson,** Casper men prominent in the oil industry for decades.

A. E. Chandler and **D. P. Van Burgh,** both of Casper, elected chairman and sec. respectively of Natrona petroleum industries committee. . . . **W. H. Curry** of the Atlantic Refining Co. is new pres. of Wyoming Geological Assn. Other officers: **R. L. Sielaff,** Sinclair-Wyoming Oil Co., first v.p.; **P. W. Reinhart,** Shell Oil Co., second v.p., and **D. T. Hoenshell,** Gen. Petroleum Corp., sec.-treas.

New officers of Northwestern Utah Section of American Chemical Society are: **Prof. Theodore M. Burton,** chairman; **Dr. G. Victor Beard,** v. chairman; **Dr. Randall E. Hamm,** sec.-treas.

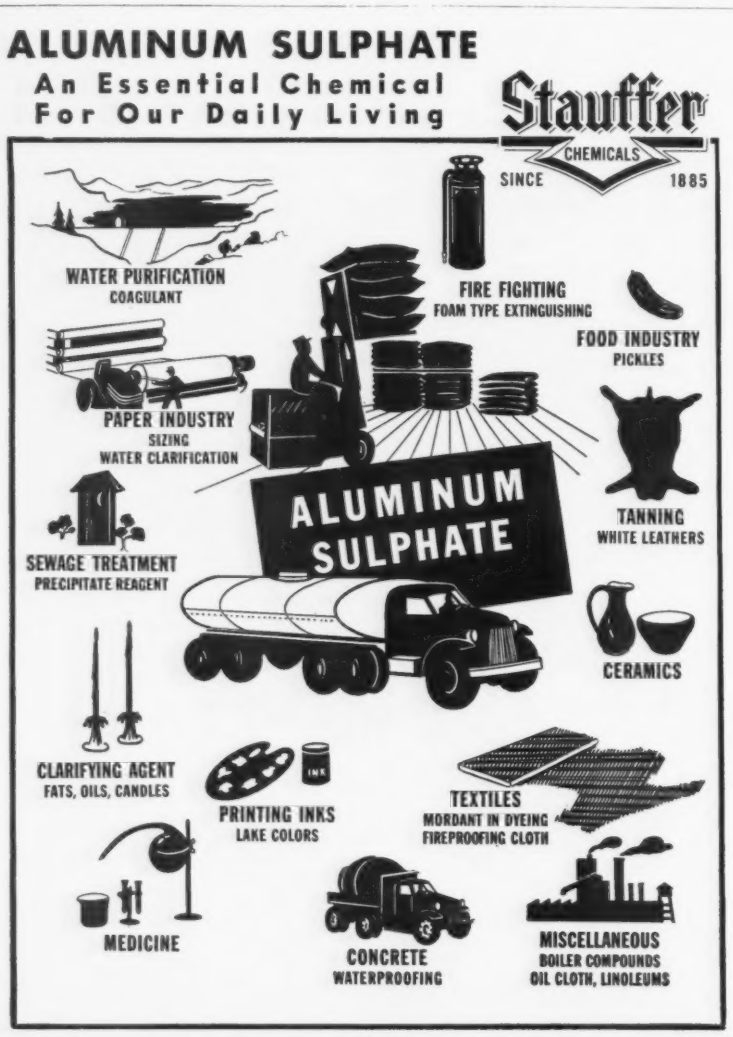
• Westerners will speed Eastward in this new Convair-240 airliner, built by Westerners, 100 of which have been ordered from Consolidated Vultee's San Diego division by American Airlines. Seats for 40 passengers are provided. The plane, powered by two Pratt & Whitney 2100 h.p. engines, has a cruising speed of nearly 300 miles per hour.

REGIONAL REVIEWS

SIERRAS TO THE SEA

SAN FRANCISCO — The San Francisco Bay area is a victim of pressure groups at present. On one side is the pressure of the machinists out on strike, who have crippled industrial activity of all kinds to a point of almost paralysis. On another is the pressure of some industries to move away to a more stable labor area, such as Southern California. And on still another is the pressure of new business to come in.

To take the last first, the San Francisco Chamber of Commerce reports that contrary to the belief that Southern California is a more active region industrially, for the first 10 months of 1945 the Bay area led the entire state. Furthermore, $116,741,945 was spent for expansions in Northern California, 90% of which was in the Bay area, and this figure exceeds by $53,114,715 the total of $63,627,230 spent by Los Angeles industries.



(This is the second of a series of charts on chemicals and their uses)

Stauffer Chemical Company

SAN FRANCISCO NORTH PORTLAND LOS ANGELES

CHEMICALS | FOR INDUSTRY AND AGRICULTURE

This 10 months figure covers $63,683,545 for 275 expansions and $53,058,500 for 324 new factory projects in Northern California. Los Angeles expansions for the same period amounted to $41,960,230 and new factories $21,667,000. Northern California continued the high rate of growth through November, with $9,713,000 in outlays for 68 new plants and 45 additions.

Crying Need for Space

This has caused an extremely tight situation regarding available factory, warehouse and office space. The armed services are beginning to release space no longer needed by them, but even if they vacated the entire area the demand would not be met, and new construction is proceeding only at a snail's pace. Even the release of government space was only a phantom move, because the Veterans Administration and other civilian agencies of the government promptly gobbled up the empty offices.

Against the favorable developments must be set the serious, though obviously temporary, situation of the machinists' strike, which has closed upwards of 200 firms and thrown probably 60,000 men out of work. Not all of these men are machinists, by any means, but many plants, such as Hills Bros. Coffee, have been shut down because the absence of a few machinists has made it almost impossible to keep the machinery turning.

Some Industry Scared Away

Long-range effects of this strike include the fact that Western Crown Cork & Seal Co., who had planned to build a $1,500,000 plant in San Francisco, are holding their plans in abeyance, Link Belt Company have earmarked all construction funds for increasing plant capacity to expansions in Los Angeles and Seattle instead of San Francisco, and even Joshua Hendy Iron Works are considering closing down and going somewhere else where the labor situation will be more stable. One firm already has moved to Santa Cruz, the Stanger Manufacturing Company.

Management laid the case very frankly before the press at a recent news conference, where it was pointed out that the machinists were already getting 28% more than their 1941 scale and had scorned a 10% advance beyond that, demanding instead a straight 30% increase. The California Metal Trades Association said that if the unions would come down 10% it might be possible to bridge the difference, but at this writing nothing had developed.

Ralph Hoffman, president of Link-Belt Pacific Company, chairman of the negotiating committee for the metal trades employers, admitted that in times past the conduct of many employers had not been such as to develop confidence or cooperation from labor. Today a new philosophy

has developed, however, in his opinion, and every effort is being made to show labor that management has a sincere desire for cooperation and fair dealing.

Richmond on Even Keel

Catastrophic pictures of postwar Richmond have failed to come true so far. Despite the ending of new ship construction, the yards in that city are employing about 9,000 workers and it is believed the number will not fall far below that, as Yard 3 is a permanent repair and reconditioning yard, and is on a permanent basis. Layoff of workers in the Richmond area began in August, 1943, and has been continuous but on a moderate scale ever since, and Richmond does not feel that it will be hard hit.

Purchase of Chas. E. Moore's controlling interest in Joshua Hendy Iron Works at Sunnyvale by California Shipbuilding Corp. is considered to be proof that the Bechtel-McCone interests intend to stay in the manufacturing business in the postwar period, instead of confining their operations to the contracting game in which they were so prominent before the war.

Joshua Hendy is a natural complementary to Calship, because it provides a unit for manufacture of turbine and diesel engines for installation in ships built at the Wilmington yard. The production records at Wilmington in the war period were outstanding, and Steve Bechtel in a speech last year credited the generally higher record of Pacific Coast yards (which naturally included his own) over Atlantic and Gulf yards to the fact that the Pacific Coast establishments approached their problem from an engineering basis.

Charlie Moore's activities before the war were centered more on sales and promotion than manufacturing. He was the founder and manager of the Moore Machinery Co., largest machine tool distributors in the West, and still retains his control and direction of that firm. He is also a member of a syndicate that is bidding for the American President Lines.

Shoreline Problems

California State Chamber of Commerce proposes creation of a State Seacoast Engineering Board to protect California's beaches for recreation. This is an effort to coordinate the disjointed, overlapping and conflicting claims and needs of federal, state and local authorities. Many a good beach has been ruined for lack of coordinated planning between communities and authorities.

Veterans of Foreign Wars have joined the ranks of plain and fancy forecasters. Richard W. Newhall, department commander, prophesies a discharged war veteran population for California of 1,750,000 by next July, and 3,000,000 when demobilization is completed.

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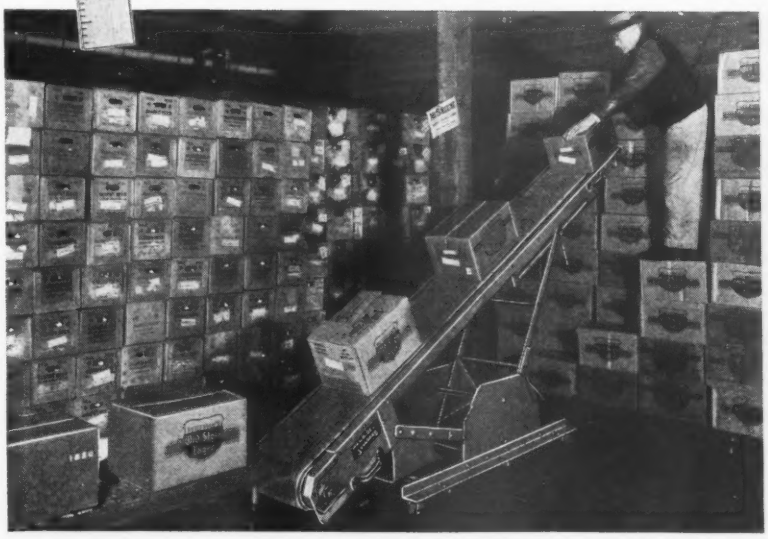

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REGIONAL REVIEWS

OLYMPICS TO THE COEUR D'ALENES

SEATTLE—The State of Washington and its industry are unusually close to nature. With climatic conditions which are especially conducive to plant growth, agriculture and forestry are key elements in its economy. In addition, the major part of its industry stems from farm and forest products.

Thus, in the 20-year period from 1920 to 1939, an annual average of 65 percent of the total manhours in the State's industry (179 million out of 277 million) were expended in the processing of plant crops. This included 94 million manhours in forest products manufacturing, 43 million in logging, and 42 million in the food industries—the latter being 15 percent of the total. During the war years from 1940 to 1944 inclusive, the average annual total production rose 99 percent to 550 million manhours (primarily in aircraft, shipbuilding, metal products, and chemicals). At the same time, food products manufacturing rose 76 percent to 74 million manhours, retaining a 13 percent proportion to the total.

The most unusual feature here is the diversity of plant crops. The geographical characteristics, with their related climatic and soil conditions, make possible a greater variety of high quality crop products in commercial volumes than in any other state.

It is not surprising, therefore, that the quick-frozen food industry got its start here in the Northwest. The wide variety of products, the outstanding quality inherent in many of them, the staggered harvesting seasons, and the broad time spread between first and last crops all help toward more economical packing. In fact, one known freezer recently achieved the ideal. He started packing the first of the new year's early crops the day after he finished packing the last of the previous season's late crops.

This industry—with its amazing growth rate and its potential effect on agriculture, food processing, merchandising, marketing, and our individual lines—warrants a review.

The National Picture

The production of frozen foods still is relatively small in comparison with other foods. It is cutting into the canning and preserving processes to some degree, but is expected to affect fresh fruit merchandising mostly. Thus it promises to be a major factor in postwar food processing.

The application of new freezing techniques and the organization of effective distribution facilities indicate a trend toward increased mechanization of the food industries. They also seem to encourage an increased short range stability of food prices. Both tendencies may benefit food organizations which are in a position to apply modern freezing technology.

Commercial developments, such as self-service retail store and refrigerated locker plants, have paved the way for more intensive marketing of frozen foods in both urban and rural areas. Although institutional and industrial uses were the major early markets for these products, the retail market holds the greatest potential volume.

The process is peculiarly adapted to this market. Since the key to improved efficiency of retailing practices is uniform packaging, minimum handling, and high turnover, and the key to the food packers margin is maximum processing, the combination of advantages will favor the extension of packaged frozen foods.

The Washington Picture

In considering the food industry, one important result of the State's industrial growth is in the improvement and expansion of processing facilities. The Washington-Oregon frozen fruit and vegetable production (usually combined because of

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the integrated operations) has climbed from 142 million pounds in 1940 to 190 million pounds in 1944. In the latter year it represented 34 percent of the nation's total of 565 million pounds.

Figuring Washington's contribution conservatively as half of this combined total, it processed about 95 million pounds by quick-freezing out of the total 2,217 million pounds of fruits and vegetables harvested. This is a ratio of 4½ percent, whereas the national average is approximately 1½ percent. Out of the total of 240 million pounds of *vegetables produced for processing*, 42 million or 17½ percent were frozen.

Crystal Gazing

But the quick freezing industry in Washington dares not rest on its laurels. Whereas it has grown during the past four years at the rate of 17 million pounds per year, California's expansion rate is 42 million pounds annually and the national total is 83 million. The two main factors in this race to capture the retail frozen food market are raw materials and marketing techniques.

Washington's 48 freezers are already packing nine varieties of vegetables (especially peas, corn, and green beans), six varieties of fruits (featuring Elberta peaches and apples), and eight varieties of berries (Marshall strawberries being tops). In addition they froze 18½ million pounds of fish and seafood products in 1944, as well as undisclosed quantities of meat, poultry, pastries, soups, and juices. Even complete and balanced meals are being developed! But with all this variety and volume, the freezers still need more products from the farms in order to serve existing demands—the Elberta peaches and Marshall strawberries being wanted especially.

When it comes to merchandising and marketing, the customary routine of billboard and newspaper advertising is not likely to be adequate in attaining large volume sales of a particular product or brand. The more aggressive (and successful?) public relations programs probably will include:

1. The promotion of frozen foods as compared to other types on a national scale by the freezer's association as well as individuals;
2. National advertising of brands by radio and periodicals;
3. Store display and dispenser equipment provided by the producer;
4. Insulated packages to prevent thawing between store and home;
5. Educational advertising to help the housewife in using frozen foods in the best manner and to the greatest advantage.

Unless Washington's producers carry out some program also, the old story will again be repeated: Born here, raised here, but forced to move elsewhere in maturity due to lack of adequate promotion.

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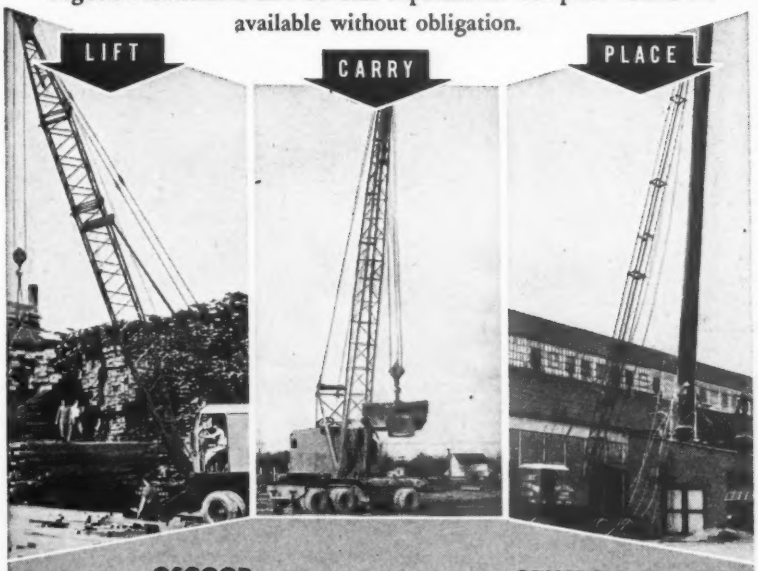

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MARION, OHIO

REGIONAL REVIEWS

TEHACHEPI TO TIJUANA

LOS ANGELES—Most southern California manufacturers, as they turned the calendar round to mark the opening of the first full post-war year, were ready to discard the rose-colored glasses through which they had been viewing the lush civilian goods markets.

Even those who have been cashing in on the unprecedented Christmas trade already have been finding buyers for important retail and wholesale outlets insisting on better machining and workmanship, well aware that the market for shoddy merchandise will soon dry up as goods of standard quality become available once more.

Gratifying, of course, was the trade's willingness to keep on buying well beyond the normal end of holiday rush, bearing out statistical predictions of vast unsatisfied demands by U.S. consumers—*but for goods of known quality and sound merit.*

Although major buyers are becoming more exacting as to quality, they do not appear disposed to drive too hard bargains. Some of the more experienced manufacturers, however, are inclined not to press this present advantage too far, preferring a long-term, moderate price policy that will be a bulwark in future battles along the price front.

Handwriting on the Wall

Handwriting on the wall, for them, is the gradual disappearance of the "west of the Rockies" price differential, as symbolized by a recent series of General Electric advertisements heralding a uniform price schedule throughout the nation. Coming from a firm that has publicly announced a policy of returning to pre-war prices, rather than seeking higher ceilings, the move sets the stage for equalizing—at conservative levels—some inter-regional price differences of long standing.

With more and more Eastern producers setting up local production for the Western market, competition can be depended on to remove many bricks from this internal "tariff" wall. Better, many industrialists feel, to set a favorable competitive price level and get well entrenched now, depending for profits on increased volume and cost-cutting.

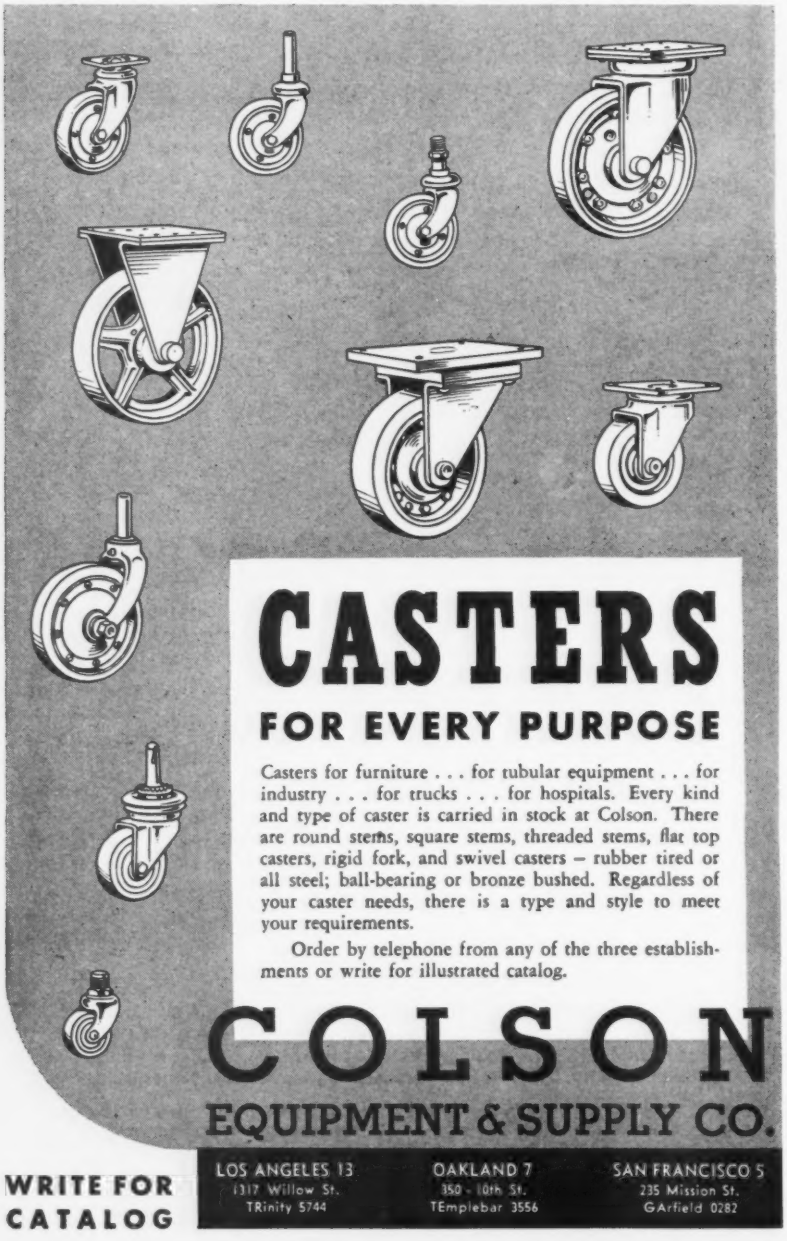
Neatly reversing the field, one Western manufacturer of toys is doing a land-office business in one of his pre-war staple items, and attributes much of his success to absorbing the shipping costs himself, thus laying down his product on the East Coast at the same price as manufacturers there.

The normal reaction of the typical small plant's management, on receiving their V-J Day notices, seems to have been to swing all hands over to production of pans and skillets. Certainly so many southern California firms got into this market during late months of 1945 as to prompt one observer to remark, "Why, they've already turned out enough frying pans to provide one for every man, woman, and child in the state of California!"

Handy Stop-Gaps

These products, of course, were handy stop-gaps to occupy idle machines, and were a sure-shot seller when retail shelves were bare. But the stampede to grind out these very obvious items shows the need for more serious planning and real product engineering than had been devoted by the average war plant's management.

Fortunately, the West has created many markets for new and distinctive products relatively unknown in the East—an open opportunity for alert business men here on the ground. The super-market and the drive-in restaurant, for instance, are typical Western creations which before the war were bringing new demands for refrigeration equipment of ultra-modern design. Relatively unexploited still, this field is one in which the Western producer has the advantage of easy contact plus experience at close hand.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WRITE FOR CATALOG

One large war-time maker of life rafts and airplane gas tanks is quickly returning to this field, foreseeing great opportunities for its experienced fixture craftsmen in the vast expansion of retail business establishments now under way. Such items as glass-enclosed, fluorescent-lighted racks for displaying garments; modernistic counters and cabinets for department and dime stores; equipment for fountain lunches, hosiery bars, are in brisk demand with all advantages in favor of the local producer.

Slow Deliveries

Irritatingly slow deliveries of Eastern-made components recently has shown many manufacturers the disadvantages of a 3000-mile supply line. No far-sighted producer, of course, will intentionally let good customers get away if he can help it, but large suppliers, faced with shortages that made it necessary to dole out supplies only to their best customers, naturally have diverted most of their production to firms nearer home, with whom they have done business for years—a logical move but one operating to the disadvantage of the more youthful Western industries.

Dependence of the West's radio industry, for example, on Eastern sources was made painfully evident when major parts makers were tied up in an argument with OPA over higher ceiling prices. Only a trickle of vital parts such as transformers, condensers, and tubes were available on the West Coast. Natural sequel was that a number of small plants formerly engaged in military radio and radar work turned to the manufacture of the needed components.

The same proved true when local household appliance makers found themselves hamstrung for lack of fractional horsepower motors, usually bought east of the Rockies. Half a dozen new sources now are developing here and will be the nucleus of a self-sustaining small motor industry. Thus have the common difficulties of many industries turned into mutual opportunities for all.

Small Industry Enters

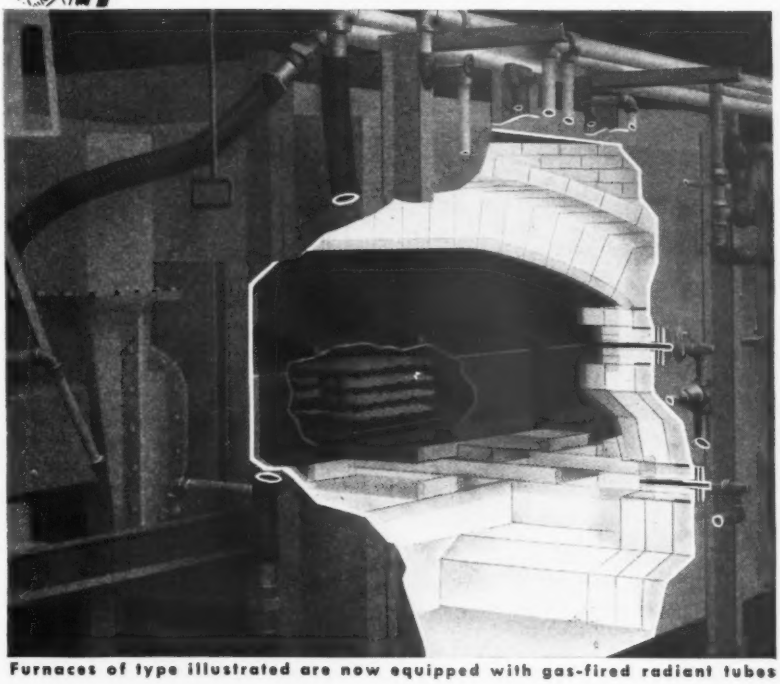
Agile small industry is being drawn into fields which in most cases may prove better suited to its facilities, or at least more profitable, than the war-time job-shop production of heavy components. Los Angeles Chamber of Commerce officials, lining up the semi-annual gift and art show, quickly filled all open space with exhibits from some 325 manufacturers and had to turn away 125 more.

Buyers previewed more than 1500 full spring lines of artware, stationary, leather goods, pottery, China and glass, metalware, plastics, lamps, novelties, and other accessories. Lest these be classed as trifles, it should be remarked that the ceramics industry here produced more than $25,000,000 worth of goods in 1945 despite

(Continued on Page 62)

GUNS into PLOWSHARES

as America Reconverts



Furnaces of type illustrated are now equipped with gas-fired radiant tubes

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THE PACIFIC COAST GAS ASSOCIATION

LOS ANGELES *(Continued from Page 61)*

war hardships—most of this production coming from "little firms with a big idea."

Employment in southern California at the turn of the year is beginning to approach peace-time levels, now that the twin giants of Western industry—aircraft and shipbuilding—no longer dwarf the more prosaic, workaday fields of enterprise. With payrolls of the major airframe companies in Los Angeles County currently at about 65,000, or 28% of the war-time peak, and shipyard employment down to less than half the all-time high of nearly 100,000 workers, these industries appear to have fully absorbed their major cutbacks. Aircraft, indeed, is rebounding and the industry as a whole expects to increase its employment about six percent during the first three months of 1946.

Permanent Growth

Testimony to permanent growth is the fact that these payrolls still represent increases of 150% and 200%, respectively, above their 1940 employment levels.

Incidentally, the heavy impact of the cutbacks among women employees is shown by the following percentages of feminine workers in the major plants: V-E Day, 38%; V-J Day 37%; mid-December, 27%.

U.S. Employment Service officials said non-war employment is compensating more fully than had been expected for the severe cutbacks at the war's end, but pointed out that Los Angeles still is classed as a surplus labor area.

As in war-time, employers who must import workers from outside, whether skilled or unskilled, first must find a place to house them. One producer of building materials moved heaven and earth recently to get 15 additional technical workers—only to find the newcomers ready, after a few days' grappling with southern California's housing shortage, to go back to their Eastern homes. By some miracle, space was found. Some employers have been running large display ads in quest of housing accommodations for evicted employees.

A note of cold logic gradually is beginning to penetrate the fevered discussions of this civic problem, as the realization grows that only one thing—more production of lumber, brick, soil pipe, hardware, and other materials—can cure the situation. One councilman, however, offered the heretical suggestion that $100,000 be clipped from the All Year Club's annual appropriation and diverted to the City's Housing Authority, as a means of housing those already here, instead of attracting more tourists for whom there would be no accommodations!

Out-of-State Vets

Not all the newcomers who continue to pour into southern California are tourists, however. U.S.E.S. reports that more than half the veterans contacting its offices here are out-of-staters, the bulk of them naturally congregating in metropolitan areas. From military separation notices received in the state during the past year, it appears that 25 to 35 percent of the men inducted in other states intend to seek work here.

This west-bound tendency corresponds to a similar movement which began immediately after World War I. Some 162,000 men had entered the armed services from California, but by 1940, an estimated 500,000 had established residences here.

Similarly, half a million World War II veterans already have returned to California, and a good 30% of these formerly were residents of other states.

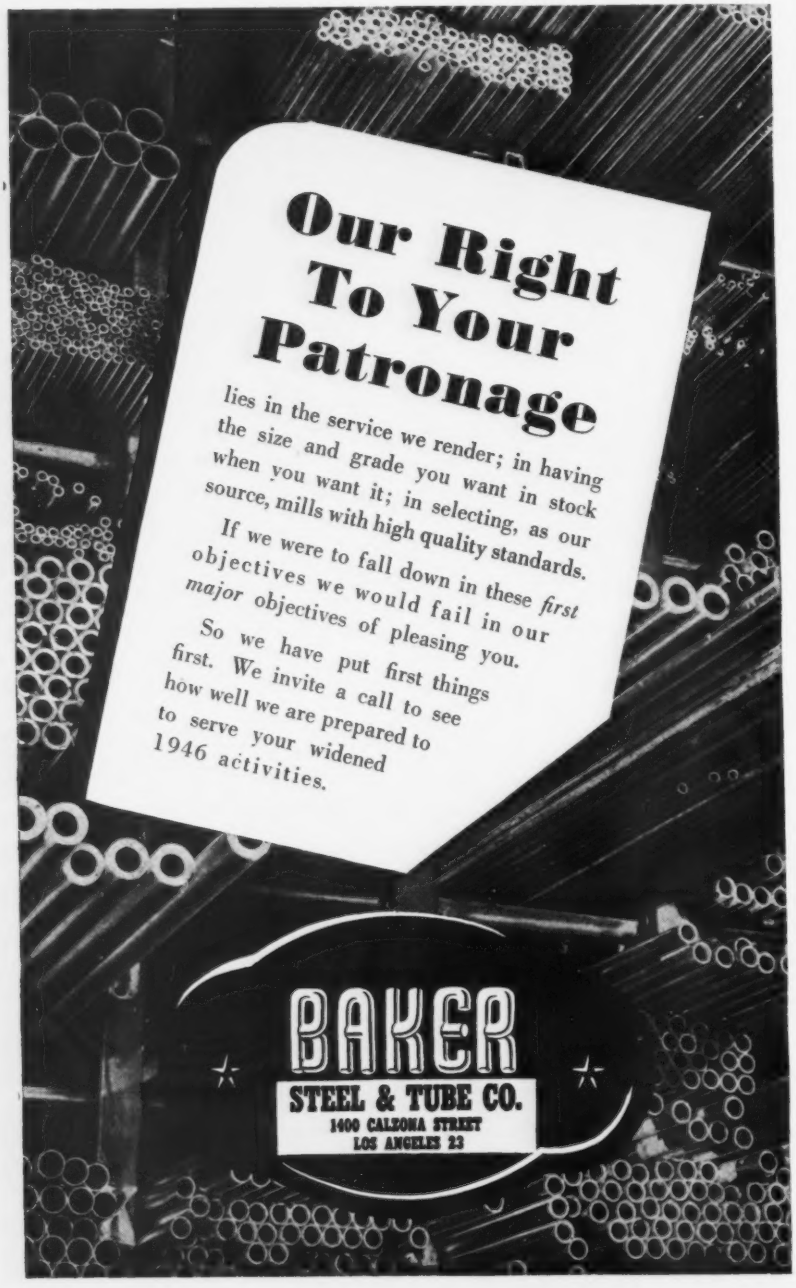
Roy Stockton, U.S.E.S. veterans' employment expert, traces this strong trend to four main factors:

(1) The moderate climate, often recommended by doctors;

(2) Exaggerated but obsolete reports about wartime salaries and labor shortages here;

(3) Inaccurate economic impressions gained while living in training camps or hospitals here; and

(4) Influence of wives who lived in California—and liked it—while awaiting their husbands' return from the services.


Our Right To Your Patronage
lies in the service we render; in having the size and grade you want in stock when you want it; in selecting, as our source, mills with high quality standards.
If we were to fall down in these first objectives we would fail in our major objectives of pleasing you.
So we have put first things first. We invite a call to see how well we are prepared to to serve your widened 1946 activities.
BAKER
STEEL & TUBE CO.
1400 CALZONA STREET
LOS ANGELES 23

Northrop Aeronautical Institute Announced

Opening of the Northrop Aeronautical Institute at Hawthorne, Los Angeles county, to qualify students for jobs with airframe manufacturers and airlines as technicians, engineers and administrators has been announced for March, according to an account in the Northrop News, official organ of the company.

In addition to giving instruction to resident students, the school will also conduct extension courses based on new methods of home study presentation.

The institute will be housed in two new buildings and a large field hangar. It will be equipped with modern class rooms, laboratories and machinery. Director of the institute is James L. McKinley.

Prediction Right Square on Nose

As an example of sound forecasting, the survey of 75,000 workers conducted by the research department nearly two years ago has proved startlingly accurate, according to the San Diego Chamber of Commerce.

In the results of the survey, published in a brochure in July, 1944, Table No. 16, gave the estimated *postwar* female labor force in the San Diego area.

The figure: 33,000.

A few weeks ago a report was received from the state department of industrial relations covering *current* female employment.

The figure: 33,000.

Signs of our mechanized age: Tabulating machine replaces crystal ball!

Autos May Benefit From Aerodynamics

Principles learned in aircraft design and construction may result in reduction of weight and improved use of structural materials for automobiles, according to Mac Short, of Lockheed Aircraft Corporation and W. E. Miller, consulting engineer, of Burbank, California who addressed the annual meeting of the Society of Automotive Engineers recently at Detroit.

Principal application of aerodynamics to automobiles is expected to be in body design. Possibilities of weight reduction and improved use of structural materials will probably be in a greater use of aluminum alloy sheets and castings for secondary body parts and hardware.

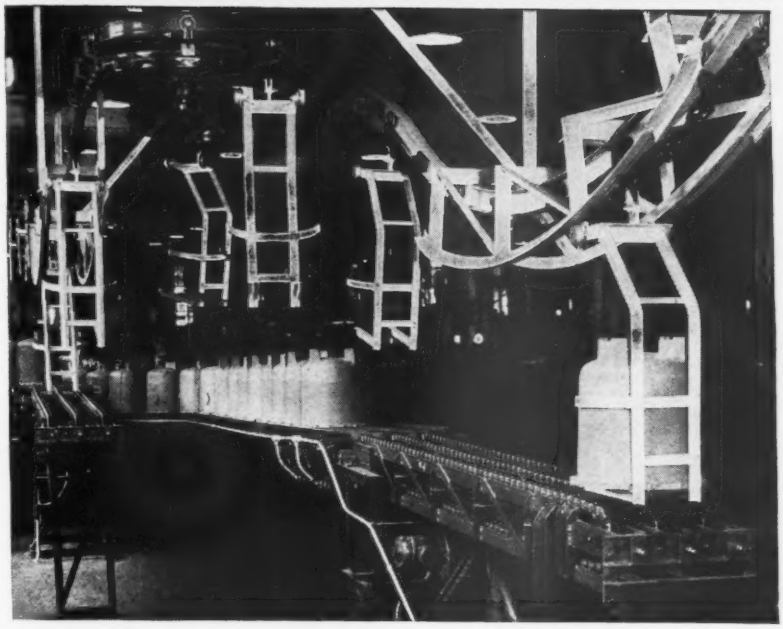
Anti-Frost Machine

Work on an anti-frost machine and an experimental two-place pusher type personal plane to be used for citrus groves is expected to require additional production personnel at the Jarvis Manufacturing Company's plant in Glendale in the near future. The firm did much of the sheet metal work for B-17's, B-24's and Douglas dive bombers during the war.

Mathews

TROLLEY CONVEYERS

Engineered to serve Production



Overhead Trolley Conveyers are applied under many conditions in many industries. They serve as painting lines in machinery plants, handle cores and castings in foundries, handle ware in ceramic plants, move skips and trays for cigarette manufacturers, and serve ovens and pickling tanks by bringing materials through them in a continuous flow. Transverse bends reaching working height, and the many types of trays and hangers available make Trolley Conveyers very flexible. There is a Mathews Engineer in your vicinity. He will tell you about Trolley Conveyers, and the many other types of Mathews Conveyers which are engineered to serve production. Write or wire today.

MATHEWS CONVEYER COMPANY WEST COAST
300 SEVENTH STREET
SAN FRANCISCO, CALIFORNIA
SALES DIVISION — MAILLER SEARLES, INC.
SAN FRANCISCO — LOS ANGELES — PORTLAND — SEATTLE

REGIONAL REVIEWS

THE COLUMBIA EMPIRE

PORTLAND — Oregon industry has had a chance now to glimpse the new year and, in the main, has found it full of prospects that are more than interesting.

The state's postwar planning and readjustment commission has lined up construction projects that call for an investment in the near future of $1,000,000,000 and which will entail huge investments in products of Oregon industry.

Portland banks have passed the $1,000,000,000 mark in deposits and banks in Oregon are well on their way toward $1,500,000,000 that will be available to expanding industry and consumers of Oregon products.

Approximately 50 American and foreign flag steamship lines will be shipping from the Columbia river for all the world's markets.

Oregon industries already in world markets are expanding sales and production forces to a great extent and plans are being laid for new entrances into foreign fields.

At least 30 large Eastern manufacturers are planning definitely to move to the Pacific Coast and the Columbia Empire expects to draw a large percentage.

The Oregon labor front is returned to comparative peace and quiet with the two largest industries set for the remainder of 1946—lumber and agriculture.

Oregon's ratio of returning service men and unemployed war workers has been set by Dun & Bradstreet at 40 per cent of the 1940 prewar industrial payroll. It is the best rating on the Pacific Coast, and not too far from the top in the nation because a large percentage of Oregon's prewar industry became war industry with little conversion.

Yards on Way Out

The "war baby" shipyards, however, are on the way out as a major part of the state's industry and have created the major unemployment problem. December unemployment compensation at $2,000,000, however, was half the 1940 figure, and the $1,000,000,000 in construction now definitely in the cards will take up much of the labor slack when materials are available in quantity.

Swan Island shipyard is now Henry Kaiser's top unit in the Portland-Vancouver area where nation-wide shipbuilding records were broken during the war.

The largest yard, Vancouver, is expected to be the first to be declared surplus and will deliver its last ship, a C-4 cargo vessel in February.

Although the ships will be gone, the Vancouver yard will furnish the organization for construction of a $1,000,000 racetrack for Portland Meadows—all concrete and steel.

Albina Engine & Machine works, one of the busiest smaller yards, will deliver the last of four steel coastal lumber ships, designed by President L. R. Hussa, in February. Half of the yard's 20 cargo vessels for The Netherlands East Indies are completed and the last will be ready in April. The yard plans to continue in ship repair, which it has done during the war in addition to construction, but will reduce the 2500 workers with which it started the new year.

Shipyard Record

The record of Portland-Vancouver shipyards during the war was a great one and saw 751 vessels of nine types constructed. At the beginning of 1946 there were 744 delivered and the remainder nearing completion at outfitting docks.

After the first keel laying May 19, 1941, for the ill-fated Star of Oregon, Oregonship built 455 ships, 71 of them in 1945.

The second Maritime Commission yard was established at Vancouver and the first keel went down April 15, 1942. Since then 136 ships have gone down the ways.

Swan Island built only tankers with the first keel laid July 1, 1942, and made 153

When Every Drop Counts... Count Every Drop

Let Brooks Engineers Help You With Your Liquid Measurement Problems

If you have a gauging problem, call your nearest Brooks office. Brooks engineers, trained and experienced in this specialized work, will be glad to consult with you and assist you in its solution.

The Brooks Equipment Company represents the Varec tank gauge line. For instant indication of tank contents, Varec gauges have no equal in dependability and accuracy.

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INDUSTRIAL MARINE PROCESSING EQUIPMENT
636 POTRERO AVENUE, SAN FRANCISCO 10
1101 Fourth Ave. Seattle 1 | 1233 N. W. Twelfth Ave. Portland 9 | 1159 So. Hill St. Los Angeles 15

deliveries not counting ships completed for other Kaiser yards in the area.

The value of ships delivered to the first of 1946 was $2,063,000,000, no small figure. Peak employment was 97,860, but by January 1, 1946, it was 10,500 in the three yards. The total payroll has passed $878,000,000.

Interesting in closing tabulations of the Columbia river's wartime shipbuilding record is the fact that, at the time of peak employment, 44 per cent of employees were women. Now they are only 19 per cent. Many of those women now are on unemployment compensation rolls and, when that ends, may return for good to the kitchen. That point is one of the optimistic deductions from currently large unemployment figures.

Frank C. Stern, University of Oregon graduate who has specialized in industrial engineering in Chicago for some years, has been brought to Portland to make a study of the possibility of converting the Vanport housing center into an industrial district for light manufacturing. He will also examine the Guilds Lake district, the Oregon Shipbuilding property, the barracks section of Swan Island yard and other properties, and then report to the Portland Chamber of Commerce.

OPA Blamed For Unfair Lumber Prices

Charges that OPA officials in Washington, D. C. are responsible for the sale of off-size lumber by some lumber mills in the Pacific Northwest in order to obtain higher ceiling prices formed only part of the accusations leveled at the government agency recently.

Other assertions regarding OPA lumber policies are: that though log prices have been raised recently there has been no attendant rise allowed in the price of finished lumber; that open discrimination has taken place in favor of southern lumber operators who have been given the privilege of charging 6 per cent over ceiling prices, a privilege denied to the industry in the Pacific Northwest; that OPA has pigeonholed several vitally necessary agreements made between Western advisory committees and OPA officials from Washington, which, when finally issued, were scarcely recognizable.

Highest Bids Made For Unfinished Minesweepers

Bids of two cents on the dollar of completed cost formed the highest to be received by the government seeking disposal of five uncompleted 185 foot steel minesweepers, according to a recent announcement from Portland.

Highest bid was $70,000, offered by William Shenker of Portland.

COMMERCIAL IRON WORKS
Changes Gears Again!

Now, just as in 1919 after World War I, Commercial Iron Works is quietly changing from war to peacetime gear. Their special brand of "know-how" is again ready to repair, convert and construct ships for peacetime use.

The shift is gradual! There are still troopships to be repaired, because there are still boys overseas to be brought home. But Commercial Iron Works is ready now to overhaul merchant vessels of all types so that they may again venture into the world's trade lanes.

As we stand on the threshold of 1946, Commercial Iron Works enters its third decade of supplying the greatest nation in the world with the equipment of peace. Strategically located in Portland, Oregon, the Pacific Coast's largest fresh water port, Commercial Iron Works' famed "know-how" is geared to build, repair, convert and maintain ships for peace again!

COMMERCIAL IRON WORKS
PORTLAND, OREGON

Contractors, Fabricators, Engineers, Machinists, Founders, Shipbuilding, Marine Repairs, Drydocking

REGIONAL REVIEWS

CONTINENTAL DIVIDE

DENVER — Topsy-turvy conditions prevail in the mountain and prairie states of the West as the new year gets under way. Happy but bewildered businessmen are wondering whatever happened to that postwar lull that was supposed to come before the postwar boom.

At the season when the region's No. 1 industry — tourism — usually has everybody in a dither of anticipatory preparations for the summer tourist rush, the chief concern with regard to summer visitors is one of apprehension and alarm.

If the expected hordes do show up, what in the world will be done with them? And if they aren't treated hospitably and don't have a good time, how in the world can they be lured back again whenever "normal" conditions return? The big cities hope that the smaller places will have some room for the hot-weather visitors, and the smaller places are keeping mum hoping that the tourists will go right on by without noticing them this year.

Scramble for Chemicals

Technology has been moving faster than most people realize, and businessmen are discovering that many raw materials that have been scorned or valued dirt cheap now have rosy futures as the raw materials for chemical processes. It is a bit early to see many evidences of this new trend, but it crops out here and there.

Standard Oil Company of California has teamed up with Barber Asphalt Company to step up production of gilsonite in eastern Utah near the Colorado border. Gilsonite, an almost-oil hydrocarbon, can be made into virtually anything with modern technology, and the 40-year monopoly of Barber Asphalt is being yielded willingly enough to Pacific Coast oil interests that want a place in tomorrow's petrochemical industry.

Utah Village Factories

Reliance Manufacturing Company makes clothing in the tiny Mormon town of Manti, Utah, and it wants at least 300 more women factory workers, pronto. The plant that formerly was busy making parachutes for the government is modern in every respect and workers receive at least 55 cents an hour plus a share in a bonus system.

This plant is just one of dozens of small town manufacturing enterprises that have sprung up in the mountain and prairie states since 1940. Most towns have only one such industry and would like to get out of the uncomfortable feeling of having all their eggs in one basket. Smokeless industries are most popular with city fathers even in the big towns like Denver and Salt Lake City where the prosperous citizens who carry a lot of weight want to avoid old-fashioned industrialization with its wake of slums, "Little Italys" and other such.

Montana Activities

Montana railroads are making up for lost time in providing plant improvements. The Great Northern recently spent $390,000 on a diesel shop at Havre and is building a similar but smaller shop at Great Falls. The Northern Pacific is spending $424,000 at Laurel and Billings for new shops and offices.

The Billings-Laurel area in Montana, strategically situated where east-west and north-south lines of travel converge, is developing rapidly as a processing center in many industrial fields. Growing industries include oil refineries, machinery manufacturing and fabrication of steel products, packing and processing of food products including the world's largest beet sugar factory, meats, vegetables and fruit, and such specialized Western products as saddles and leather goods. These payroll-industries are in addition to the rich live-

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SMOOT-HOLMAN COMPANY
SMOOT-HOLMAN
INGLEWOOD, CALIFORNIA
MADE IN U.S.A.

A highly efficient floodlight for use in service stations, parking lots, yards and other areas where maximum spread of light is desired. Finished in porcelain enamel, with neutral gray exterior. Supplied with mountings for wood cross-arms, 1" to 1½" pipe cross-arm or slip-over 1½" pipe mast. Takes 750/1000/1500 W. lamp.

OFFICES IN PRINCIPAL WESTERN CITIES • BRANCH AND WAREHOUSE IN SAN FRANCISCO

stock and agricultural production of the "Midland Empire" in southern Montana and northern Wyoming, and the ever-increasing tourist and dude ranch business.

Miners Now Operators

John L. Lewis and his United Mine Workers had their way with the Rocky Mountain Fuel Company, second largest producer in Colorado. In its long struggle against bankruptcy during the presidency of Miss Josephine Roche, the company broke its back trying to pay five per cent interest on outstanding bonds.

After the coal miners came to the company's rescue, in gratitude to Miss Roche for taking their side in a knock-down-drag-out battle with Colorado coal operators, the well-heeled union began to improve the company's properties.

Finally the union insisted on getting rid of the burdensome debt and put the company through the wringer via the "reorganization" route that is a polite name for bankruptcy. Under the jurisdiction of the Federal court a plan was worked out, approved finally in a test case before the U.S. Circuit Court of Appeals, which put the company on its feet.

Josephine Roche Back

Josephine Roche returns as a director and the dominant influence of the miners' union now can manifest itself any way it pleases. Just how it will please to operate is a question that has the entire coal industry sitting on the edge of its chair, because the miners have often acted like they would like to run the coal companies and now that they have their chance to run one of their own there is no telling what may come of it.

Not so long ago, the black oil produced so abundantly in Wyoming was a drug on the market. Then the Navy called for enormous quantities of it for use as bunker fuel in the Pacific war. With termination of the war, it looked like curtains for the black oil fields, but before they had time to get their breath a series of developments showed that technological advancement has made the low-grade crudes highly useful for many purposes. In fact, with the latest refinery equipment, the finest of high octane gasolines can be made from the once shunned, gummy black stuff.

Mountain Pipe Lines

Stanolind pipe line company has spread a network of pipelines all over the Rocky Mountain region, providing ready outlets for the black oil (as well as higher grade crudes, some almost pure gasoline) to refineries at Denver, Cheyenne, Salt Lake City and as far away as Whiting, Indiana. New low tariff schedules have been posted to stimulate production in the black oil fields.

Now comes the Texas Company with a $6,000,000 refinery expansion program at Casper, Wyoming, where the latest type of "cat crackers" will be used to produce everything from the finest gasoline to asphalt and road oil. The Frontier Refining Company recently made extensive improvements in its Cheyenne refinery to facilitate the treatment of Wyoming black oils, in addition to taking care of the gasoline requirements of various customers including the Powerine Company, recently acquired by Standard Oil Company (N.J.) through its affiliate, the Carter Oil Company. Much of the black oil moves north to refineries at Laurel and Billings, Montana.

Trailmobile to Denver

Trailmobile Company of Cincinnati, Ohio, is building a plant in Denver to manufacture tank units for trailers to handle petroleum products. The company also will develop a regional sales and service unit. Total employment will run from 350 to 450 men, according to Wade T. Feterson, president of the company. Its line includes refrigerated trailers and trailers for handling livestock, grain and lumber.

Jobless Still Scarce

With less than 15,000 unemployed in the whole Rocky Mountain region, the employment service is having no great difficulty. However, finding the sort of jobs wanted by many of the unemployed is anything but easy. Grandiose notions of skills acquired in short-term courses during the war have to be broken down, and many

(Continued on Page 68)

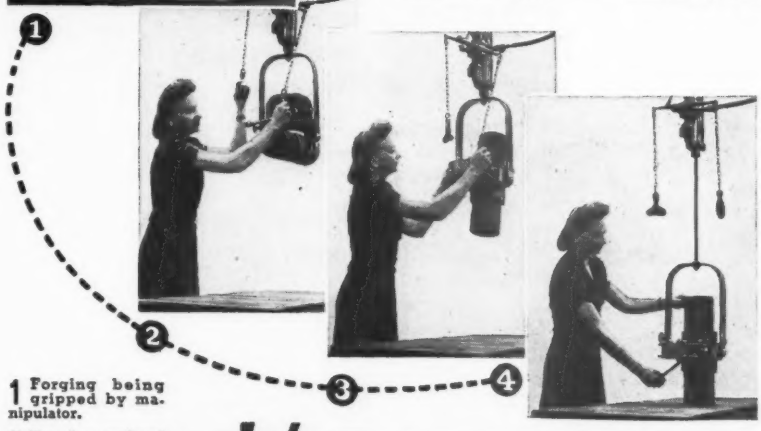
"WORK MANIPULATORS"
Ride on NOPAK Air Hoists
ENABLE WOMEN OPERATORS TO HANDLE HEAVY FORGINGS EASILY

60 of these Work Manipulators, built by Engineering Products Co., Los Angeles, Calif., served to speed up rocket production for the Navy, at the Rheem Mfg. Co., Las Vegas, Nev.

The Work Manipulator consists of a swivel-action, clamping device mounted in a jaw-like frame and attached to the piston rod of a NOPAK AIR HOIST suspended from an overhead trolley. The hoist consists of a NOPAK Model E Air Cylinder, 2" in diameter with 30" stroke. A ⅜" NOPAK 4-Way Valve, equipped with cross bar and pull chains with spring return to vertical shut-off, is mounted directly on the cylinder.

The air-powered hoist raises the forgings and enables the operator to swing them into proper position for each succeeding operation. The pictures may suggest similar time and labor saving uses for a NOPAK Air Hoist in your production or assembly operations.

GALLAND-HENNING MFG. CO.
2749 So. 31st Street Milwaukee 7, Wis.



1 Forging being gripped by manipulator.
2 Forging raised and turned to horizontal position for machining.
3 Forging returned to vertical position before lowering.
4 Forging being released in vertical position.

NOPAK
VALVES AND CYLINDERS
DESIGNED for AIR and HYDRAULIC SERVICE
A 4916-½-I

DENVER *(Continued from Page 67)*

workers sniff disdainfully at wages now being paid.

Worst headache of the employment specialists is finding places for workers, who won't take out-of-town jobs until somebody finds them living quarters which often aren't to be had. Strikes are having a negligible effect in the Rocky Mountain area. The only one that caused much alarm was that of the meat packers union, which brought threats from farmers to do their own butchering with the aid of school children, businessmen and housewives or "anybody who can handle a butcher knife."

Phone Company Cuts Loose

After saying "Excuse it, please," until everybody wondered when reasonably good telephone service might be expected again, the Mountain States Telephone and Telegraph Company has begun its long-delayed modernization and expansion program. F. P. Ogden, president, announces that the company will spend $18,500,000 in the Rocky Mountain area during 1946 as the first lap of a five-year program that will cost $75,000,000. Much of the money will be spent for new equipment to be bought from the company's affiliate, Western Electric Company, another unit in the Bell system.

Vets Back to Work

The Mountain States Telephone & Telegraph Company is getting back the last of its 1100 employees who joined the armed forces. It operates local and long distance telephone service in Colorado, Arizona, Idaho, Utah, New Mexico, Wyoming and in El Paso County, Texas. It has 700,000 telephones in service and unfilled orders for 55,670 more phones, which it hopes to supply by the end of the summer.

Schools Get Shop Equipment

Machine shop equipment valued at more than $300,000 is being supplied to Colorado's vocational training schools from the surplus stock of the U.S. Government formerly in use at the Denver Ordnance Plant. The equipment includes milling machines, lathes, grinders, drill presses and other apparatus. Approximately 75 schools and colleges will get the equipment by paying the cost of crating and shipping.

New Mexico Benefits

Hugh L. Sawyers, secretary of the New Mexico Oil and Gas Association at Roswell, has figured out that the state receives $10,000,000 in revenue from the oil and gas industry. The sum is made up of royalties, taxes, licenses, etc. He doesn't show where the money goes, but $215,000 of it is used to buy free textbooks for children in the public schools and another $516,131 goes to the public schools of the state, mostly to pay teachers' salaries.

Denver Stockyards Boom

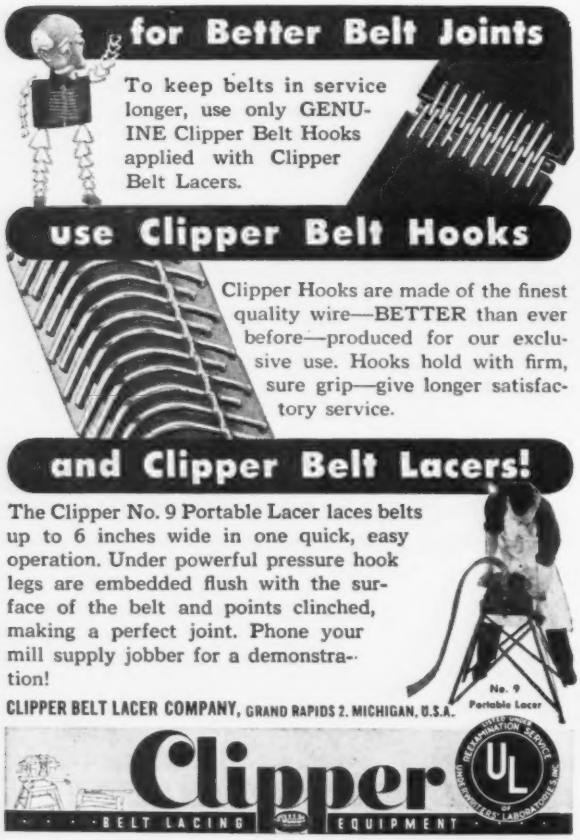
The Denver Union Stock Yard Company did a record-breaking business in 1945 totaling $141,497,500, handling a total of 3,900,000 head of livestock during the year. The figures were released by L. M. Pexton, president and general manager of the company. Figures from Denver's big meat packing companies are not yet available, but it is likely that "Denver's biggest industry" held its own in spite of serious competition from munitions and chemical warfare plants and the greatly-expanded operations of the Gates Rubber Company.

What Railroads Haul

Just what fills up all those freight cars on the railroad tracks has always been something of a puzzle, but the Burlington railroad's agricultural agent, A. K. Hepperly, has put out some interesting facts about the number of carloads of agricultural produce loaded last year in Colorado. Sugar beets topped the list with 29,000 carloads; cattle 20,000; wheat 16,000; potatoes 12,500; sheep 11,000; fresh vegetables 7,000; onions and cabbage 7,000; fresh meat 3,600; dry edible beans 3,200; peaches 2,600.

Denver & Rio Grande

The Denver & Rio Grande Western loaded the most peaches, in fact all of them. The Rio Grande also leads in potato loadings. The Santa Fe handled the most onions, the Union Pacific the most cattle and sugar beets, the Colorado & Southern the most cured meat, the Rock Island the most corn, and the Burlington the most wheat.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To keep belts in service longer, use only GENUINE Clipper Belt Hooks applied with Clipper Belt Lacers.
use Clipper Belt Hooks
Clipper Hooks are made of the finest quality wire—BETTER than ever before—produced for our exclusive use. Hooks hold with firm, sure grip—give longer satisfactory service.
and Clipper Belt Lacers!
The Clipper No. 9 Portable Lacer laces belts up to 6 inches wide in one quick, easy operation. Under powerful pressure hook legs are embedded flush with the surface of the belt and points clinched, making a perfect joint. Phone your mill supply jobber for a demonstration!
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CLIPPER BELT LACER COMPANY, GRAND RAPIDS 2, MICHIGAN, U.S.A.
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BELT LACING EQUIPMENT

This Plant dedicated to

accurate and precision gears

Since 1905 the Johnson Gear Company has been working with the steadfast purpose to improve the art of making fine gears. In step with this policy the J.G. plant is equipped with the most modern gear-cutting equipment. Some of our craftsmen have *made gears their life work* and their loyalty to this service contributes in a great part to the accuracy of our products. For special or standard gears, you will find complete satisfaction in Johnson Gear Company's service.

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MAIN OFFICE AND WORKS: BERKELEY, CALIFORNIA

Schools For Prospectors Recommended

SCHOOLS for prospectors, and small option payments for any showings discovered even though of no immediate economic importance were two recommendations made at a recent meeting of the Northwest Mining Association in Spokane by Walter A. Richelsen, consulting mining engineer of Seattle.

Richelsen in his talk on the future of mining exploration said that the United States is distinctly not in the class of a "have not" nation so far as mineral deposits are concerned.

Basing his remarks on a report on the depletion of national oil and mineral reserves made before a Senate investigating committee last August, Richelsen said that "sudden realization of our depletion in mineral reserves generally occurs in cycles" and that "new ore bodies will probably continue to be discovered."

In tungsten, platinum, mercury, asbestos, manganese and nickel it was stated that the exhaustion point for known reserves has already virtually been reached. For other minerals the exhaustion point is set as follows, according to estimates based on a presumed future consumption at the prewar 1935-39 average.

Zinc	19 years
Petroleum	18 "
Gold	14 "
Lead	12 "
Silver	11 "
Bauxite	9 "
Antimony	4 "
Bituminous coal	4,200 "
Iron ores	100 "
Sulphur	55 "
Copper	34 "

In regard to mercury the condition is not quite as critical as indicated above due to the existence of about 40,000 flasks in the country for which there is no sale at present and because of the likelihood of a continued shut-down of quicksilver mines brought about by the threat of low cost mercury from Spanish mines. In tungsten also there is still a considerable supply in Idaho and parts of Nevada.

As a means of hastening the discovery of new ore bodies he made his recommendations regarding the training of prospectors and option payments on showings. The prospecting schools recommended, he said, might be conducted by state institutions or independent mining companies.

In this connection he also pointed out that activities in present exploration programs might be increased in both geophysical prospecting and diamond drilling. Reference was also made to the possible use of radar in hunting for mineral.

Nonferrous Metals Commission Winds Up

Liquidation of the National Labor Relations Board and the Nonferrous Metals Commission has been pretty well wound up in the Denver region. The office force has been slashed from 150 to 9, and the nine are handling nothing but wage adjustment cases where price changes are involved and the even more infrequent cases where wage reductions are requested or have been reported and need investigating.

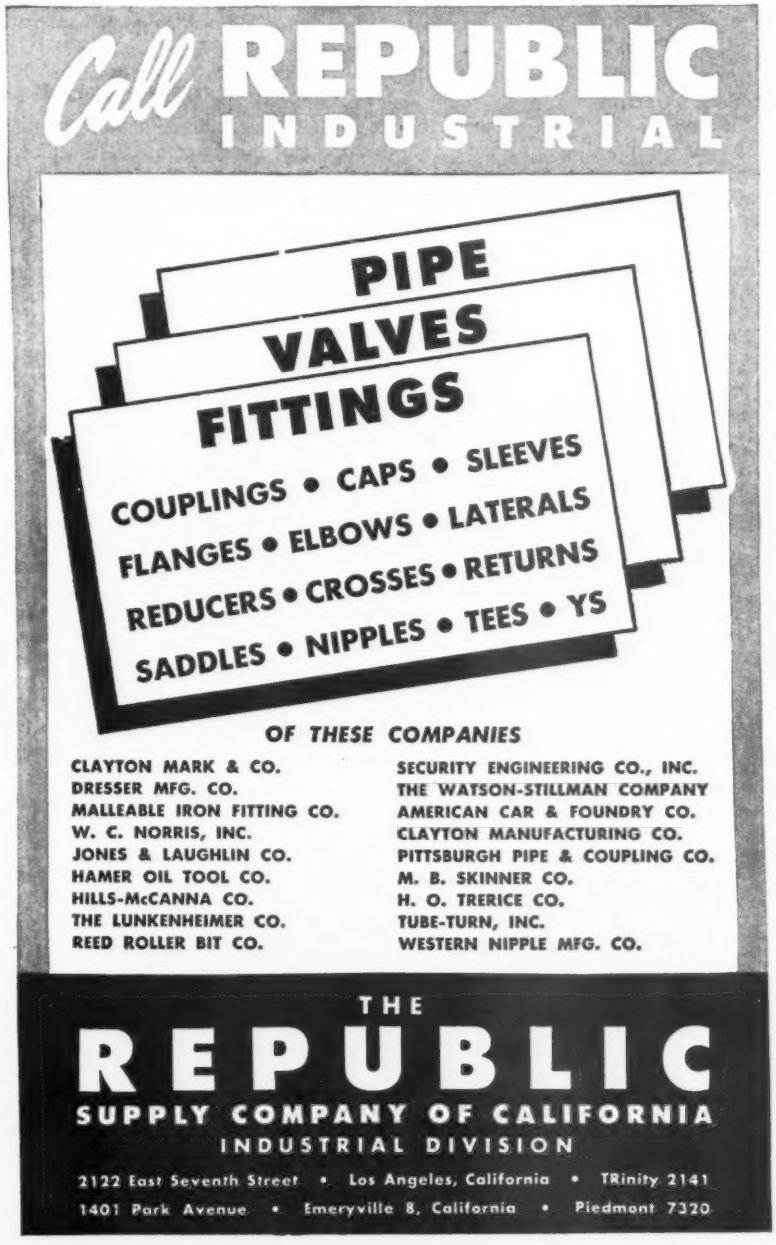
J. Glenn Donaldson still is in charge of the Denver office as chairman of the 8-man Wage Stabilization Board for this region, with Dwight Spencer in charge of cases with some title not yet settled.

Oil Development Costs

Cost of developing oil fields, measured on the basis of the costs of barrels produced, rose from 28 cents a unit in 1938 to 62 cents by 1945, according to a talk given by A. C. Mattei, of San Francisco, president of the Honolulu Oil Company, before the Rocky Mountain Oil and Gas Association convention held at Casper, Wyoming.

Idaho Injuries Up

An increase of approximately fifty percent of the October rate occurred in November in the number of industrial accidents in Idaho that resulted in either injury or death.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REGIONAL REVIEWS

THE WASATCH FRONT

SALT LAKE CITY—This area rode into the new year on the crest of a business boom. But there were good reasons to suspect that the economic exuberance was more a manifestation of feverishness than of sound industrial health. Accumulated savings and deferred purchasing power served to obscure the fact that hopes of basic industrial expansion raised by war activities were still in the "hope" stage.

Realistic businessmen recognize that unless something is done to reverse the prewar trend of shrinking employment in the basic industries, the seeming prosperity will last just so long as the war savings hold out, or as long as people are disposed to spend them freely.

They regard this deferred purchasing power as a fortunate asset if it is used as a cushion while the economic base of the area is being broadened, or as an unfortunate mirage if it is accepted as something solid and durable.

The nonferrous mining and smelting industry entered the new year on a level some 35 per cent below the 1943 peak, both as to production and employment. Labor troubles were developing and reciprocal trade agreement disturbances were in the offing.

Despite these dampening factors mining stock quotations on the Salt Lake exchange rose during the latter part of the year hundreds of percent points and in some instances thousands of percentage points. But the buying spree obviously rested more on excess money, speculative urges and fear of inflation than on the industry's near-term prospects. Talk of increase in silver and gold prices helped the boom along, of course.

Unemployment Figures

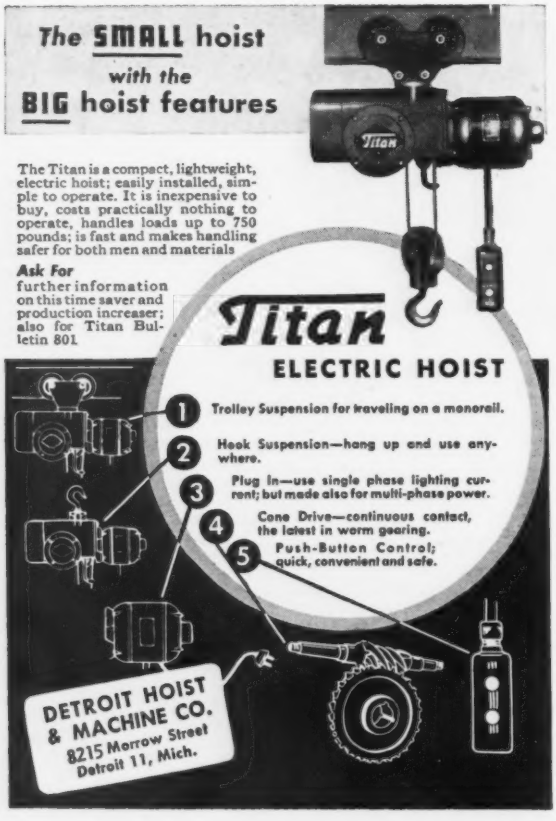
The first manifestation of a let-down appeared in December. Unemployment compensation claims for the month totaled 3885. This was much smaller than was generally anticipated for the fourth month after the end of the war. And it represented an insignificant burden on the unemployment reserves of more than $27,000,000. But it was twice the November total and approximately equal to the number of claims filed during the five previous months.

Metal and coal mining could easily absorb all the unemployed who have appeared thus far, except for the fact that they are not miners and have no desire to become miners.

An encouraging development at the turn of the year was the formation of a new company to intensively develop the Gilsonite deposits in southeastern Utah and western Colorado. The firm—American Gilsonite Co.—is jointly owned by Standard Oil of California and the Barber Asphalt Co. The latter firm has been operating at Bonanza, Utah, for several years.

The Gilsonite, a hydrocarbon closely related to petroleum, is used for storage battery cases, foundry forms, paints, varnishes and inks and promises to become a source of binder for plastics. Considerable importance is attached here to a sentence in the announcement of the new company mentioning the product as "a possible future source of synthetic crude oil." The deposits are extensive, occurring in vertical veins ranging up to 18 feet in width, more than 1,000 feet in depth and several miles in length.

Geneva steel plant, still regarded here as the area's best bet for industrial expan-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sion, was inspected recently by a group of Colorado Fuel & Iron Co. officials, headed by E. P. Holder of New York, the president. Mr. Holder said nothing during the visit that was calculated to stimulate local hopes. But his reaction was absorbed with a "grain of salt" in the belief that prospective purchasers or leasers are more interested at the moment in talking the price down than talking the future up.

The C. F. & I. president took the position that the plant's future is dependent upon development of markets in the intermountain area. The Pacific Coast, he argued, is too far away for heavy tonnage products, although Geneva may be able to compete there on specialty products which carry a high enough price to absorb heavy freight costs. On this point some of the local economists, including Dr. J. R. Mahoney of the University of Utah's bureau of business and economic research, disagree with him.

Mr. Holder suggested also that development of water resources in the intermountain area would, by bringing in new population, greatly improve the outlook for a Utah steel industry. There is no disagreement on that point.

He said that a bid for Geneva was being prepared by the company but added that he could not at the present guarantee that it would be submitted to Reconstruction Finance Corp.

Uncertainty over the future of the plant has produced some suggestions from political, labor and even business sources that the state acquire the facilities if no private operator submits a satisfactory bid.

One plan, which hasn't been publicly proposed, is for the state to use its credit to acquire the plant and then seek to induce major Pacific Coast and intermountain consumers to organize an operating company to take over on a lease.

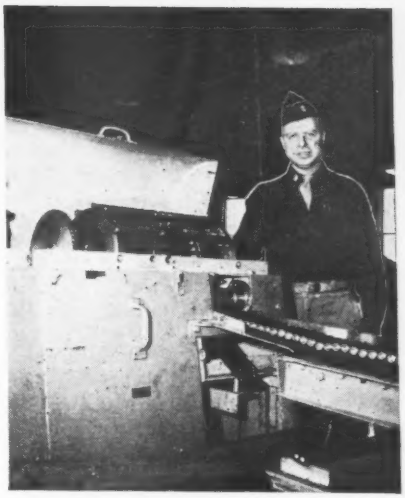
It can be confidently predicted that any such move would meet with resistance locally as a venture into state socialism. And the "trial balloons" have likely been prompted more by a desire to prod private industry into bidding than anything else.

Machine Invented For De-Linking Ammunition

Machines that tear live ammunition apart, segregate the shells according to types of projectiles and then safely remove the powder from the cartridges have been invented and put into operation at the Ogden Arsenal, Utah.

Invented by Major Harold Boehmer, the two machines are known as the de-linker and the pull-down.

The de-linker, into which the ammunition is fed on belts, not only separates the projectiles from the metal links which hold them in place, but also segregates the cartridges according to their projectiles, such as incendiary, armor piercing or tracers.



• De-Linker and Inventor

After the de-linking operation has been completed the cartridges go to the pull-down unit where the projectiles are removed and the powder is dumped from the cartridge case.

Prior to invention of the machine not more than 50,000 cartridges a day were processed. By the use of the two units it has been possible to step up the output to 500,000 a day.

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LABOR
AND THE INDUSTRIAL WEST

THAT the jurisdictional battle that got under way last fall in Northern California canneries is merely something of a prelude to inter-labor strife that will show up in other fields and in other parts of the West, appears in the formation of the AFL Progress Committee in Oregon.

The committee, currently engaged in raising funds, proposes to use them, according to advices from Oregon, in "promoting union organization and resisting the dual rival CIO." Another duty will be to provide defense for unions "under attack or raiding attempts."

Though formation of the committee will result almost inevitably in increased inter-union strife, employers in Oregon who are not now unionized can prepare themselves for increased union activity with complete assurance that their preparations will be called for.

In addition to this it is not at all unlikely that the committee, if it meets with the success it anticipates, will turn into an AFL version of the CIO's PAC. Such a step would be a natural, in fact an inevitable, development.

In the California cannery inter-union dispute a recent NLRB decision in favor of the CIO is being forwarded to Washington where a final award can be expected within a few weeks. But since, of the 10,000 cannery workers who voted last October to select bargaining agents, 4,700 of them favored the AFL, it is highly likely that a final decision for the CIO will not see an end to the dispute between the two unions.

In the dispute, which is of utmost gravity, other late developments center around the H. J. Heinz Company and the California Producers and Growers Association. Each of these organizations have been warned by the Food, Tobacco, Agricultural and Allied Workers, otherwise known as the FTA, that it will file additional unfair labor practices charges with the National Labor Relations Board if attempts are made to negotiate a contract by the Heinz company with the AFL union lately organized by the company's plant at Tracy.

According to the FTA, the AFL group was recognized by the company after picketing had stopped construction work at the Tracy plant. Production workers employed at the plant, the FTA says, were its own. The FTA further asserts that the only occasion when the plant was in operation, last November, was when its members worked a four-day trial tomato run.

The FTA has also sued an AFL Teamsters Cannery local for an alleged illegal seizure of money, union records, and picture of the late President Roosevelt, all of which it is asking be ordered returned by the court.

Viewing the strife with not undue alarm the California Processors and Growers, Inc. in the meantime got off a message to the state's 32 congressmen and two senators in the national capital asking their immediate intercession in the dispute. Unless intervention is obtained, the organization said, the bulk of the state's fruit and vegetable crops may be lost through inability of canners to sign contracts with assurance that their plants can operate during the coming season.

While such incidents in themselves are of small consequence when regarded in the light of the overall picture of AFL-CIO relationships in the West, they can justly be taken as indicative of a further source of labor trouble that may well last after labor's general demands for increased wages have been settled.

Johnston's Workers To Share Profits

Employees of the two Spokane business firms operated by Eric A. Johnston, president of the United States Chamber of Commerce — the Brown-Johnston Retail Electric Company and the Columbia Electric & Manufacturing Company—will participate in a 25 percent profit-sharing and management-sharing plan.

Under the profit-sharing phase of the plan, all employees of more than a year's standing will share in about 25 percent of the net profit before taxes on a point system.

Employees will share in the management through a "junior board of directors" elected by the workers of each firm.

The employees' profit pool will be shared in this way:

One share for each $100 of yearly salary; one for each year of continuous service; five for each term served on the "junior board of directors"; five for each person in a supervisory position; 25 shares for a department head; and 15 for an assistant department head.

The junior board will consist of seven members for each firm and will advise the regular board of directors on operations, improvement and progress of the firm, labor relations, etc. One member of each junior board may become a member of the

• Executives of the Eric A. Johnston companies in Spokane, Washington consult on methods to be employed for participation by employees in management problems and net profits. Left to right, front row: John Boothe, Clarence Tubbs, John Ruffatto, Walter Toly. Rear: Don E. Frank, Kent S. Clark, Lyle E. Marque, J. K. Featherman and John Egermen.

regular board where such a step is deemed advisable.

In explaining his philosophy behind the plan Johnston said, "We must bring industrial democracy into America. We have political democracy, and so we must have democracy for industry to make workers feel that they are part of management and that they have a voice in what's going on.

Admitting that his plan is an experiment, Johnston forecast that such a plan might set a new pattern for relations between labor and management. "One of the best ways to improve industrial relations is to make the employee feel he really is part of the organization," he said.

Johnston was a member of President Truman's Labor - Management Advisory Committee.

Pulp, Paper Workers Win Pay Raise

An agreement for higher wages between Pacific Coast pulp and paper manufacturers and contractors, and A. F. of L. unions in the industry has recently been completed.

Terms of the agreement give a 15% increase to all male employees earning from 92½ cents an hour up and a 17½-cent increase on the basic rate which is brought up to $1.05. Increase for female workers was slightly more than 10%, their new base pay now being 85½ cents. Night shift differential was raised from 2½ to 4 cents an hour.

The agreement with the International Brotherhood of Pulp, Sulphite and Paper Mill workers and the International Paper Makers affects 32 mills in the Pacific area. Workers affected in the three Pacific Coast states number 17,000.

Shaking Sheets Not Too Attractive

"The owner of one large laundry stated that operating costs which, prior to the war averaged 30 cents per gross dollar for productive labor, at the present time average 52 cents on the gross dollar," reports the California Industrial Welfare Commission.

"This two-thirds increase is attributed to inexperienced and slow workers. As an indication of the problem faced by management in maintaining production levels, this owner stated that a 4-worker unit, which before the war produced 24 shirts per hour, now produces only 12 shirts per hour.

"Management in the laundry industry universally complains that women are refusing to return to such work. This is because of the low salaries. One woman interviewed, who had refused employment as a laundry worker though this was her employment classification before she entered a war plant, stated she could not live on the low salary paid in laundries and that in addition the 'take home pay' after deductions would be less than the weekly $20.00 unemployment benefits for which she was eligible.

"This is not an isolated case. Operators have learned a bitter lesson and undoubtedly the end of the wage freeze will result in higher wages and improved working conditions which should attract a more efficient type of employee."

Successor For Seattle Labor Board

The 12th Regional Board at Seattle, during its total existence, received 3,782 cases.

Action was taken in 2,988 cases of reported violations. Action is still pending in 794 cases. Findings were returned against 484 firms, with a total of recommended income tax disallowances of $1,050,567.

A Labor Department Wage Stabilization Panel has been set up to take the place of the 12th Regional War Labor Board in Seattle. The number of regular, alternate, and substitute members to represent industry has been cut from 12 to 6. Gerry Weaver, Secretary, United Metal Trades Association, American Bank Bldg., Portland, will represent employers in Oregon.

Price, Wage Increases OK'ed For Fittings

Price and wage increases in the cast iron and soil pipe and fittings industry form an attempt to break one of the worst bottlenecks that are holding up the construction of small homes.

The increases, announced jointly by the Office of Price Administration and the National War Labor Board, are calculated to attract needed manpower into the industry that is currently experiencing a labor shortage.

Increased Living Costs Said to Cut Wage Raises

A two per cent increase in the cost of living is construed as wiping out over one week's pay for the average worker, according to estimates published by the California State Federation of Labor.

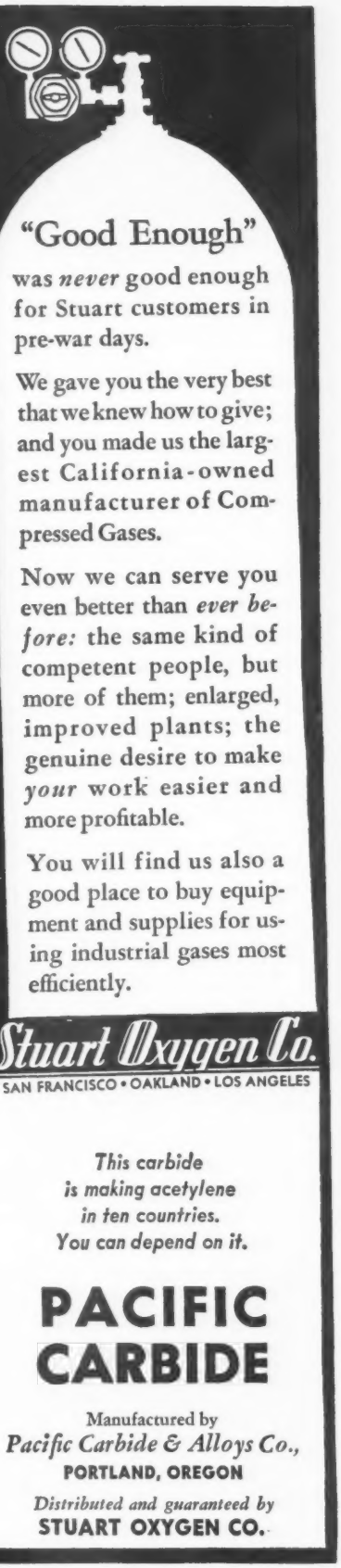
On the basis of this assertion the federation estimates that a 10% raise in pay for a worker accompanied by a 3% raise in living costs means an actual increase of only 7% in income.

First Aid Programs Are Stepped Up

In connection with its stepped-up program to teach first aid, the American Red Cross reports good cooperation from state industrial accident and labor departments on the Pacific Coast, as follows:

The California Industrial Accident Commission is pushing first aid and many California Red Cross chapters report extensive first aid programs in large companies.

In Washington state, the department of labor industry has two full-time men teach-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ing Red Cross first aid in state-wide industries. These two men, Bruce Igou and Maurice Van Mechlin, hope to train between 10,000 and 15,000 men in Red Cross first aid in 1946. This will provide a number of mobile units on call for chapters in case of flood or fire disaster and first aid detachments for the use of industry.

Veterans' Jobs Touchy Question

Necessity for keeping in touch with Selective Service regarding the fine points of a veteran's right to his former job, because changes are being made from time to time in the Veteran's Assistance Program, is pointed out by Robert McKean, manager of Columbia Empire Industries, Portland. He cites the following instance:

A worker who left his job as leadman in a shipyard, to enlist in the Navy in 1942, applied for reinstatement in January, 1944, following honorable discharge because of injuries. On January 9, 1944 he was reemployed as a checker, a position which he had formerly held before being promoted to leadman. His reemployment was a result of his agreement with the company that he be relieved of "certain arduous duties" ordinarily required in his job as leadman because of service-contracted disabilities, although he was qualified for either job.

On March 10, 1944 this veteran requested the company to put him back on his job as leadman or on a job of like seniority, status, and pay. The employer failed, during a period of a year, to comply with this request, so the veteran filed suit for the difference between his pay as checker and what he would have earned as leadman between March 10, 1944 and January 10, 1945.

The Federal District Court granted this claim after deducting appropriate withholding and Social Security taxes, entering judgment in the veteran's favor in the amount of $370.

Committee Agrees On Movie Crafts Division

A "division of work designations within the motion picture industry patterned after previous agreements negotiated mutually by the various crafts" has been decided upon as the groundwork for preventing future inter-union strikes such as that which made Hollywood a labor battleground during the greater part of last year.

The decision was that of a special AFL committee consisting of Felix H. Knight of the Brotherhood of Railroad Carmen, W. C. Birthright of the Barbers' Union and W. C. Doherty of the Postal Carriers.

Wage Raises Disallowed

Asserted unauthorized salary increases to 17 employees before the easing of wage controls last August have resulted in a disallowance of $2,000 for income tax purposes for the Holsum Baking Company of Roswell, New Mexico, according to J. G. Donaldson, chairman of the Ninth Regional War Labor Board in Denver.

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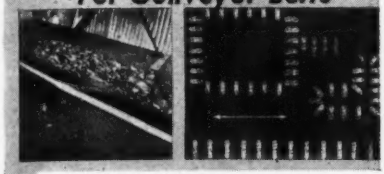
Present Day Practice in Belt Fastening

Every man who has anything to do with the purchase, application or maintenance of conveyor, transmission or V-belts will find the bulletins listed below of considerable value in connection with belt fastening work. A knowledge of present day practice in belt fastening helps reduce the loss in machine hours due to belt failures caused by the use of the wrong type of fastener or improper application. We shall be glad to send any or all of them to you or to any of the men in your organization.

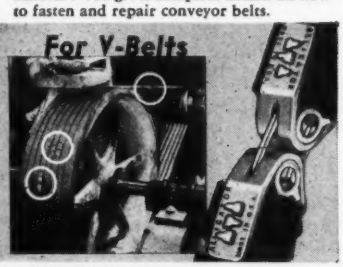
For Conveyor Belts



FLEXCO HD Belt Fasteners are used to make a "water-tight" butt joint in conveyor belts ranging from ¼" to 1½" thick and of any width. The view on the right shows the various types of rips and patches that can be made with these fasteners and Flexco HD Rip Plates.

Bulletin F-100 gives complete details on how to fasten and repair conveyor belts.

For V-Belts



ALLIGATOR V-Belt Fasteners are now being widely used to fasten B, C and D, open-end V-belting of cross woven fabric core construction now being made by most belting manufacturers. The view at the left shows a typical application of these fasteners to a drive where endless V-belts would require dismantling the machinery to put the belts on the sheaves.

Bulletin V-205 gives complete instructions on how to use V-belt fasteners.

FLEX V Fasteners for A and B belts are also available for lighter duty V-belt drives. Ask for **Bulletin V-14.**

For Transmission Belts

ALLIGATOR Steel Belt Lacing is in world-wide use to make smooth, flexible joints in leather, rubber, balata, stitched canvas or solid woven belts up to ⅜" thick and as wide as they come.

Bulletin A-60 tells how to fasten and repair transmission belts.

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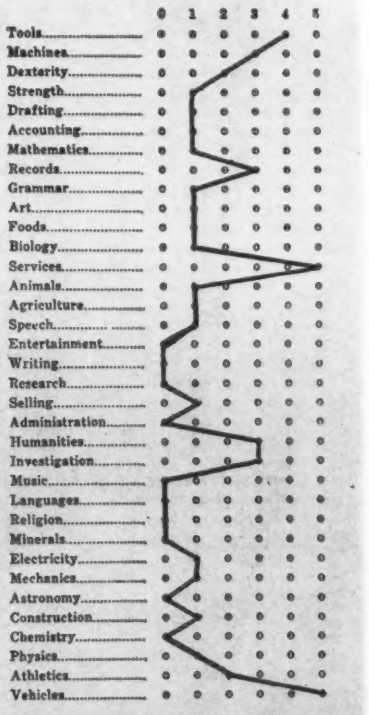
New Tests For Coach Operators

RESPONSES to 35 branches of endeavor that include such unrelated subjects as the humanities, astronomy and art, are now used to weed out applicants for coach operating jobs who would be unsafe if hired.

The test resulted from studies of the increased accident rate in the public transportation system of Los Angeles that were conducted by committees of the Greater Los Angeles Safety Council and the National Institute of Vocational Research.

Discovery that a small percentage of coach operators were involved in the greater number of accidents led to a decision to find out what characteristics, or lack of them, made a man a menace at the wheel.

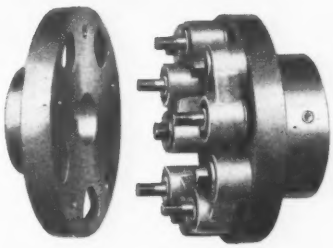
Driver Test Reactions Reveal Safety Potentials



Job profile of 132 low-accident coach operators with an average of .75 accidents per year per man.

Through classification of operators into groups on the basis of their accident records it was found that those in the lowest group had from 0 to 4 accidents a year; those in the second from 5 to 8; in the third, termed unsafe, from 9 to 12, and in the fourth, the dangerous classification, from 13 on up.

Results of the tests revealed that the men in each group adhered to a definite pattern.



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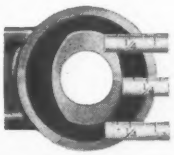

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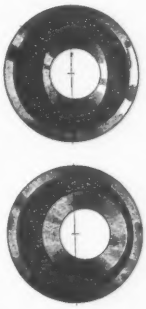

Key to the successful performance of Type R Couplings is the shape of the patented pin block. The rule on the top illustration shows clearly that the bearing surface on the rubber in the line of force remains the same under all conditions. The center and bottom illustrations compare the cushioning of the Fabco coupling to the conventional round pin and rubber type coupling.

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THE PICTURE

With the number of strikes rising rapidly and growing in intensity industry in the West is feeling their effect increasingly. Because of the acceptance of CIO demands by Kaiser, however, it is possible that the full impact of the great steel strike may be slightly less severe in the 11 Western States than elsewhere. But the difference will not be great enough for Westerners to become excited about it. Pointing up the basic industrial health of the West is the fact that except for strikes, numbers of unemployed are beginning their first decline since V-J Day.

Lumber—*Production Soars*

Mirroring the decline of labor difficulties in the Pacific Northwest, lumber production in December jumped to an average of 88,271,000 bf per week, representing a jump of 21.3 per cent. But with the industry's unfilled order file at the first of the year standing at 738,232,000 bf, and with gross stocks amounting to only 400,405,000 bf, there was a substantial gap to close before a balance could be reached between supply and demand.

Cumulative figures for 1945 compared with the same period in previous years, and measured in thousands of board feet, are as follows, according to the West Coast Lumbermen's Association:

	52 Weeks 1943	52 Weeks 1944	52 Weeks 1945
Production	7,920,421	7,902,289	5,799,672
Pct. of 1941-'45 years of production	93.9	93.6	68.7
Orders	8,396,277	8,196,752	6,251,069
Shipments	8,157,702	7,923,966	5,815,144

Western Pine Association figures covering Idaho White Pine, Ponderosa Pine, Sugar Pine and associated species for the current year ending December 29, 1945 are:

	1944	1945
Orders	2,779,011	2,180,708
Shipments	2,789,607	2,184,534
Production	2,614,436	1,994,642

California Redwood Association figures for Redwood lumber through the month of November (sawn products in M. feet B.M.) are as follows:

	1944	1945
Orders	316,566	377,927
Production	418,217	369,563
Shipments	399,475	363,002

Oil—*Deliveries Rise*

Deliveries for all oil products in the Pacific Coast territory during November rose for an increase of 4,000 bbls. daily over the October figure. Gross daily deliveries came to 901,000 bbls. While distillate fuel oil deliveries jumped 30,000 bbls. and heavy fuel oil deliveries by 25,000, those of gasoline rose by only an average of 2,000 a day.

Total amount delivered by the oil companies in the Pacific Coast area, including all deliveries to the federal government and any offshore shipments, and including transportation and other losses, is as follows:

	All Products (Bbls.) 1944	1945
January	993,000	1,066,000
February	1,011,000	1,124,000
March	1,018,000	1,068,000
April	954,000	1,148,000
May	900,000	1,135,000
June	969,000	1,085,000
July	884,000	1,011,000
August	883,000	1,010,000
September	902,000	954,000
October	945,000	897,000
November	992,000	901,000

Lumber production in thousands of board feet by states of the 11 Western States during the first six months of 1945 is shown in the following table. Figures for Utah and Wyoming are not reported separately. Source is the Lumber and Lumber Products Division of the War Production Board.

	Arizona	California	Colorado	Idaho	Montana	New Mexico	Oregon	Washington
January	12,900	119,449	7,123	51,876	21,034	4,872	477,191	332,504
February	12,348	105,701	6,516	51,154	21,324	6,257	453,271	302,803
March	9,429	126,002	6,103	59,322	27,689	6,102	494,204	322,410
April	12,349	170,362	5,173	60,562	24,029	6,237	471,151	309,592
May	16,636	217,665	6,414	72,672	37,763	9,932	500,898	338,616
June	14,211	262,529	6,786	73,806	42,728	7,651	491,757	331,693

Lumber production in thousands of board feet from Western Softwoods in the first 9 months of 1945 are as follows, according to figures prepared by the Bureau of the Census.

	Port Orford Cedar	Western Red Cedar	Douglas Fir	White Fir	Western Hemlock	Larch-Douglas Fir	Ponderosa Pine	Sugar Pine	W White Pine	Redwood	Sitka Spruce	Other	Total
January	3,750	14,030	573,463	25,641	55,942	49,943	196,199	10,303	25,289	35,495	25,111	17,241	1,036,747
February	3,854	12,926	522,321	11,498	53,878	52,865	201,420	9,551	22,164	32,284	22,977	19,269	964,507
March	4,534	14,551	553,539	19,313	76,823	48,769	238,175	13,296	24,562	34,304	16,585	16,569	1,061,050
April	4,120	15,045	515,391	23,955	45,980	76,180	274,362	14,340	25,522	35,168	19,810	16,140	1,066,393
May	3,000	12,572	548,644	34,289	56,802	94,127	354,335	22,482	34,757	39,800	20,194	17,365	1,238,587
June	2,141	17,741	526,108	40,164	51,618	102,730	365,988	26,119	25,115	38,277	19,976	22,000	1,239,910
July	2,245	9,239	396,349	43,154	38,269	86,294	340,329	29,251	24,011	34,282	11,693	22,969	1,038,085
August	3,083	12,137	471,026	54,610	51,836	97,670	319,358	30,492	21,367	37,030	17,839	24,399	1,140,877
September	3,243	9,404	385,327	42,178	46,113	82,564	240,788	25,040	19,779	35,694	12,901	20,387	923,418

Mill and Concentration Yard Lumber Stocks

According to figures furnished by the Bureau of the Census.

(in thousands of board feet)

	California	Colorado	Idaho	Montana	New Mexico	Oregon	Washington
January 31, 1945	447,677	2,910	141,484	52,885	1,597	419,676	299,571
February 28 "	413,473	2,332	133,421	49,214	1,758	393,336	292,295
March 31 "	376,131	3,491	132,052	42,686	2,822	382,743	277,153
April 30 "	341,827	3,160	133,481	37,149	2,795	390,383	302,724
May 31 "	375,154	5,256	134,428	39,564	4,203	388,478	275,514
June 30 "	419,501	2,625	129,837	41,606	4,931	384,421	291,223
July 31 "	441,034	2,955	131,701	51,053	6,342	402,360	286,196
August 31 "	470,924	1,526	140,027	51,414	4,779	410,476	261,919
September 30 "	485,335	3,531	142,315	51,132	4,460	395,954	253,473

Soft Plywood—*Production Declines*

According to figures furnished by the Bureau of the Census.

(thousands of sq. ft., ⅜" equivalent)

	MATERIALS PRODUCED			MATERIALS CONSUMED			
	Moisture Resistant	Exterior	Total	Logs	Veneer	Soy Bean	Phenolic Resin
June 1945	88,928	32,355	121,283	51,502	391	2,222	1,707
July "	60,160	25,419	85,579	39,348	325	1,490	1,376
August "	81,548	32,085	113,633	52,233	273	2,134	1,782
September "	62,439	27,217	89,656	39,885	178	1,693	1,434
October "	41,040	26,422	67,462	30,083	126	1,488	1,191

Coal—*Production Rises*

Reports by United States Bureau of Mines

	Montana	Wyoming	Colorado	New Mexico	Utah	Washington	Other	Total
Jan. 1945	460,000	956,000	760,000	155,000	660,000	149,000	2,000	3,131,000
February	390,000	792,000	750,000	130,000	540,000	128,000	1,000	2,761,000
March	472,000	890,000	763,000	157,000	620,000	146,000	1,000	3,043,000
April	325,000	712,000	565,000	115,000	532,000	110,000	....	2,359,000
May	356,000	810,000	516,000	135,000	543,000	110,000	1,000	2,471,000
June	385,000	805,000	518,000	118,000	540,000	104,000	1,000	2,471,000
July	375,000	790,000	500,000	120,000	510,000	95,000	1,000	2,391,000
August	380,000	768,000	556,000	116,000	502,000	108,000	1,000	2,431,000
September	402,000	934,000	643,000	141,000	566,000	117,000	1,000	2,804,000
October	298,000	851,000	598,000	116,000	492,000	111,000	1,000	2,467,000
November	364,000	870,000	557,000	112,000	531,000	124,000	1,000	2,559,000

Employment—*Eleven Western States*

Estimated Number of Employees in Non-Agricultural Establishments—In Thousands—Source: U. S. Bureau of Labor Statistics

ALL INDUSTRY DIVISIONS

	Montana	Idaho	Wyoming	Colorado	New Mexico	Arizona	Utah	Nevada	Total Mountain	Washington	Oregon	California	Total Pacific
January	102	92.7	60.5	257	77.9	108.1	139	37.9	875	624	361	2,504	3,489
February	101	92.9	59.8	257	78.0	109.1	138	38.1	874	621	353	2,506	3,480
March	102	92.6	60.5	258	79.5	109.5	137	38.6	878	619	347	2,487	3,453
April	107	91.6	59.4	257	79.7	109.4	138	39.0	881	615	344	2,467	3,426
May	108	93.0	60.5	260	81.4	110.3	138	41.1	892	613	343	2,434	3,390
June	109	93.0	61.8	263	82.3	108.8	140	42.7	901	611	345	2,402	3,358
July	109	93.6	63.9	263	82.9	107.4	144	42.7	907	616	343	2,414	3,373
August	110	92.9	64.7	263	83.1	106.2	144	43.3	907	612	343	2,419	3,374

MANUFACTURING

December	13.2	14.7	4.8	48.3	5.0	18.1	28.5	1.9	135	254	138.1	877	1,269
January	12.6	13.1	4.2	44.9	5.1	18.9	26.1	1.8	127	251	162.8	854	1,268
February	12.0	13.2	4.3	46.4	5.3	19.5	26.5	1.8	125	249	154.9	847	1,251
March	11.9	13.5	4.2	47.2	5.1	19.4	22.5	1.7	126	247	147.0	824	1,218
April	12.1	13.3	4.3	46.9	5.0	19.6	22.0	1.7	125	240	143.0	803	1,186
May	12.1	14.2	4.1	47.0	5.0	19.5	21.7	1.6	125	235	140.5	760	1,136
June	12.0	13.9	4.3	47.5	4.9	16.1	22.0	1.5	124	232	140.7	722	1,095
July	11.9	15.4	4.4	48.4	4.9	17.0	25.1	1.5	129	233	137.9	719	1,090
August	12.4	14.2	4.4	48.0	5.2	16.1	24.9	1.5	127	224	135.1	720	1,079

Though factory employment in California dropped by 64,000 workers in November from the October total, according to the Division of Labor Statistics and Research of the Department of Industrial Relations, the steady decline since last summer seemed to be halted by December when factory employment made a slight gain.

While the overall increase in factory workers amounted to only a thousand, December showed the first increase in durable goods workers since the fall of 1943.

No gains were shown in the lumber, auto and shipbuilding industries. Among the largest gainers in major industries was aircraft, which showed an employment advance of 11 per cent.

Even in the San Francisco Bay Industrial Area the Division's estimates indicated that employment had risen in the durable goods manufacturing industries despite the crippling machinist strike which put thousands of workers on the streets.

EMPLOYMENT—DURABLE GOODS INDUSTRIES

(Figures from Calif. Div. of Labor Statistics)

	San Francisco Bay Area	Los Angeles Indus'l Area	Total State
December	182,300	290,400	565,900
January 1945	178,600	288,400	558,700
February	175,700	287,200	555,800
March	161,600	283,700	537,700
April	148,100	272,500	512,800
May	140,500	254,000	481,700
June	134,400	234,900	450,700
July	124,400	226,100	431,100
August	117,900	217,100	414,000
September	84,100	149,600	288,500
October	72,100	135,900	259,300
November	35,800	134,700	219,600

Iron—*Same Play*

IRON ORE SHIPMENTS FROM MINES

(Reported by Bureau of Mines)

	Utah	Wyoming	Calif.	Total
January	175,735	65,318	33,205	274,258
February	138,594	53,619	16,251	208,414
March	182,576	58,934	18,291	260,401
April	190,157	45,253	32,065	267,475
May	185,632	43,047	32,913	261,592
June	164,783	52,461	29,872	247,116
July	142,461	44,434	28,086	214,981
August	176,061	47,430	100,755	324,246
September	142,798	40,838	14,545	198,181
October	141,550	48,932	5,888	196,370

Pig iron and steel production for the Western area of the United States are reported by the American Iron and Steel Institute in net tons as follows:

Pig Iron:	Current Month	Percent of capacity	Year to date	Percent of capacity
January	172,223	71.5	172,223	71.5
February	151,409	69.6	323,632	70.6
March	171,151	71.0	494,783	70.7
April	162,738	69.7	657,521	70.5
May	149,184	61.9	806,705	68.7
June	141,334	60.6	948,039	67.4
July	141,317	58.8	1,089,356	66.1
August	135,740	56.3	1,225,096	64.9
September	104,190	44.8	1,329,286	62.7
October	105,708	43.9	1,434,994	60.7
November	86,986	37.3	1,521,980	58.6
Alloy Steel*:				
January	2,549	----	2,549	----
February	3,489	----	6,038	----
March	5,475	----	11,513	----
April	2,474	----	13,987	----
May	4,423	----	18,410	----
June	4,016	----	22,426	----
July	5,688	----	28,114	----
August	1,531	----	29,645	----
September	4,517	----	34,162	----
October	5,966	----	40,128	----
November	9,078	----	49,206	----

Steel Total:	Current Month	Percent of capacity	Year to date	Percent of capacity
January	367,927	88.2	367,927	88.2
February	333,170	88.4	701,097	88.3
March	373,350	88.6	1,074,447	88.7
April	344,695	85.3	1,419,142	87.8
May	308,784	74.0	1,727,926	85.0
June	306,862	75.9	2,034,788	83.5
July	298,743	71.7	2,333,531	81.8
August	267,468	64.1	2,600,999	79.5
September	235,175	58.3	2,836,174	77.2
October	223,796	53.6	3,059,970	74.8
November	210,866	52.2	3,270,836	72.7
Carbon Ingots, Hot Topped*:				
January	52,514	----	52,514	----
February	54,049	----	106,563	----
March	56,450	----	163,013	----
April	51,498	----	214,511	----
May	37,426	----	251,937	----
June	21,144	----	273,081	----
July	9,073	----	282,154	----
August	8,204	----	290,358	----
September	3,623	----	293,981	----
October	8,442	----	319,095	----
November	6,049	----	325,144	----

**Included in total steel.*

Copper—*No Change*

	Arizona	Montana	Utah	Total Western including other states
January	25,371	9,003	19,692	67,707
February	23,619	8,090	18,269	64,572
March	26,239	8,929	19,548	70,820
April	25,425	7,540	19,807	63,966
May	26,000	8,613	20,900	65,235
June	24,110	8,218	19,771	64,201
July	22,055	6,651	19,826	57,176
August	22,100	6,340	18,478	57,088
September	21,250	4,061	19,177	54,233
October*	22,000	7,100	17,900	57,103

(*October figures preliminary)

Radio, Radar—*Production*

Production of radio and radar equipment and major components in California since 1939 was as follows, according to the War Production Board, Radio and Radar Division, Department of Commerce, Bureau of the Census:

PRODUCTION OF RADIO AND RADAR END EQUIPMENT (PRIME)

	1939 Total	1939 Monthly Average	First 6 Mos. 1943 Total	First 6 Mos. 1943 Monthly Average	1944 Total	1944 Monthly Average	First 6 Mos. 1945 Total	First 6 Mos. 1945 Monthly Average
California	4,982	415	12,001	2,000	38,236	3,186	21,049	3,508

PRODUCTION OF CAPACITORS

	1939 Total	1939 Monthly Average	Last 6 Mos. 1943 Total	Last 6 Mos. 1943 Monthly Average	1944 Total	1944 Monthly Average	First 6 Mos. 1945 Total	First 6 Mos. 1945 Monthly Average
California	30	2	------	------	820	68	597	99

PRODUCTION OF RESISTORS

	1939 Total	1939 Monthly Average	Last 6 Mos. 1943 Total	Last 6 Mos. 1943 Monthly Average	1944 Total	1944 Monthly Average	First 6 Mos. 1945 Total	First 6 Mos. 1945 Monthly Average
California							247	41

PRODUCTION OF RADIO TRANSFORMERS

	1939 Total	1939 Monthly Average	Last 6 Mos. 1943 Total	Last 6 Mos. 1943 Monthly Average	1944 Total	1944 Monthly Average	First 6 Mos. 1945 Total	First 6 Mos. 1945 Monthly Average
California	179	15	1,013	168	3,961	330	2,011	335

THE TREND

Regardless of the strikes now sweeping the country, many Westerners apparently feel that settlements of one kind or another will be effected fairly quickly. Accordingly, most of them are going ahead on the assumption that the economy will be in full swing within a matter of months, at least. Another indication of this trend in thought appears in the fact that many Eastern organizations are making their moves for opening Western plants in spite of the present unsettled conditions. Basically, the greater part of industrial thought is one of optimism for the country's future in general and in that of the West in particular.

THE WESTERN OUTLOOK . . . . (CONTINUED)

Ships—*Swan Song*

For the first month since America's huge shipbuilding program got under way early in the war, no keel was laid in West Coast shipyards of the USMC in December.

Figures for December ship construction are as follows:

1945	Keels Laid	Ships Launched	Ships Deliv'd	Thousands of Deadwt. tons
Mar.	50	50	55	612
April	43	50	47	487
May	38	46	53	534
June	38	44	46	466
July	29	42	42	409
August	15	23	31	335
Sept.	2	14	28	250
Oct.	2	9	27	257
Nov.	1	7	14	125
Dec.	0	1	3	15

(The one ship launched during December was a C-2. The three ships delivered were cargo ships.)

Fruits, Vegetables—*'45 Pack*

California's canned fruit pack for 1945, though it lagged 3,000,000 cases behind that of 1944, exceeded that of the three other years in the decade. The state's vegetable pack, however, went over the top for the 1940's, passing that of the next nearest year, 1944, by about 400,000 cases.

In the following figures prepared by the Canners League of California, the glass pack has been converted to a tin basis and included with the tin pack.

FRUITS
Cases—No. 2½ can basis

	1945
Apricots	3,949,252
Cherries	509,480
Pears	1,475,366
Peaches (free)	520,342
Peaches (cling)	12,248,215
Plums	69,796
Figs	668,615
Other Fruits	264,242
Fruit Cocktail	6,035,335
Mixed Fruits	564,583
Total	26,305,226

VEGETABLES
Cases—All Grades and Sizes

	1945
Asparagus	2,479,952
String Beans	387,415
Peas	199,881
Spinach	2,546,932
Tomatoes	2,280,639
Tomato Juice	7,025,479
Tomato Paste	2,520,649
Tomato Puree	4,074,282
Tomato Catsup	686,474
Tin	2,120,058
Glass	2,739,787
Tomato Sauce	788,195
Other Tomato Products	331,050
Tin	955,578
Glass	643,543
Total	29,179,914

Freight—*Western Traffic*

Freight movements for the five weeks in December continued to decline in the trend established in preceding months.

Total traffic figures for the railroads in the far West were as follows:

	Loadings	Eastern connections	Total
July	960,556	388,440	1,348,996
August	695,277	450,497	1,145,774
September	595,143	310,868	906,011
October	617,023	313,964	930,967
November	535,620	278,746	814,366
December	586,302	302,807	887,009

Cement—*West Lags*

Largest single month's production of cement took place during October with a national output of the finished product totaling 11,104,000 barrels. The figure was 21 per cent above the output reported for October 1944.

PRODUCTION
(In thousands of barrels)

	—California—		Oregon-Wash.		Colo.-Wyom. Mont. Utah - Idaho	
	1944	1945	1944	1945	1944	1945
July	1,312	1,538	454	278	237	317
Aug.	1,129	1,491	446	245	291	331
Sept.	1,360	1,364	378	305	280	296
Oct.	1,439	1,431	319	346	299	304

Metal Products—*Shipments*

According to figures furnished by the Bureau of the Census.
(in thousands of dollars)

	Denver, Colorado	Salt Lake City, Utah	Bakersfield & Ventura-Oxnard, Calif.	Fresno	Los Angeles	Modesto, Sacramento & Stockton	Phoenix	San Diego
TOTAL VALUE	10,063	311	165	312	125,873	4,205	3,346	12,216

	San Francisco	San Jose	Santa Ana	Bellingham Everett Seattle-Bremerton & Tacoma	Longview-Kelso, Olympia & Yakima	Portland & Vancouver, Washington	Spokane
TOTAL VALUE	87,524	9,412	969	72,591	206	58,654	628

Wholesalers' Sales and Inventories—*For October 1945*

According to figures furnished by the Bureau of the Census.
(in thousands of dollars)

	Automotive Supplies	Drugs and Sundries	Dry Goods	Electrical Goods	Furniture & House Furnishings	Groceries & Food, except Farm Products	General Hardware	TOTAL
Mountain	581	1,553	341	865	232	3,707	1,134	10,835
Pacific	1,557	4,098	1,479	3,428	1,038	7,381	2,069	32,728

Wheat Production—*Shows Rise*

According to figures furnished by the Bureau of the Census.
(bushels reported)

	WASHINGTON		OREGON		CALIFORNIA		COLORADO		MONTANA		UTAH		IDAHO	
	Mills Report'g	Wheat Ground	Mills Report'g	Wheat Ground	Mills Report'g	Wheat Ground	Mills Report'g	Wheat Ground	Mills Report'g	Wheat Ground	Mills Report'g	Wheat Ground	Mills Report'g	Wheat Ground
August 1945	17	2,503,772	16	1,457,694	10	926,400	18	828,914	15	635,281	20	645,355	13	334,885
September 1945	16	2,397,880	16	1,315,306	10	909,779	18	823,209	15	733,818	20	610,239	15	325,996
October 1945	16	2,738,276	16	1,494,901	9	1,007,319	18	870,823	16	727,244	22	696,928	15	413,227

Warehousing—*Constriction Continues*

Available space in warehouses throughout the West during November moved down a fraction in conformity with the national trend towards a general tightening of warehouse space.

The following statistics on Public-Merchandise Warehousing are based on the reports of 645 firms and are made available by the Bureau of the Census, Department of Commerce.

	Mountain and Pacific Division	Idaho	Montana, Utah and Wyoming	Arizona, Nevada and New Mexico	Colorado except Denver	Denver	Washington except Seattle	Seattle	Oregon except Portland	Portland	California except L.A. and S.F.	Los Angeles	San Francisco
July 1945	91.4	91.9	85.3	94.1	64.9	77.8	88.2	97.5	97.3	89.4	97.4	95.7	94.2
August 1945	91.6	95.0	85.2	92.2	67.3	82.8	91.4	96.3	97.3	85.0	96.6	95.0	93.9
September 1945	81.6	95.8	81.7	91.3	51.4	86.5	92.4	95.1	97..3	88.7	86.5	95.1	94.0
October 1945	91.9	98.1	93.4	93.4	57.7	94.9	97.5	94.9	97.3	91.3	90.1	95.5	91.1
November 1945	92.0	94.5	82.1	94.4	58.4	91.9	93.7	94.9	97.3	91.2	88.3	96.4	91.8

Lead —*Production Makes Slight Gain*

Figures are according to monthly reports of the U. S. Bureau of Mines

	Arizona	California	Colorado	Idaho	Montana	Nevada	New Mexico	Utah	Washington	Wyoming	Total
July	2,035	507	1,361	5,000	1,068	552	590	2,602	152	....	13,867
August	1,861	522	1,404	5,196	822	535	546	3,259	302	....	14,450
September	1,569	650	1,686	4,600	868	508	468	3,030	215	....	13,594
October (preliminary)	1,650	600	1,623	4,800	900	500	492	3,050	270	....	13,885

Zinc —*Slight Rise*

Production of zinc, in short tons, in each of the 9 Western States on a monthly basis is as follows, according to the U. S. Bureau of Mines:

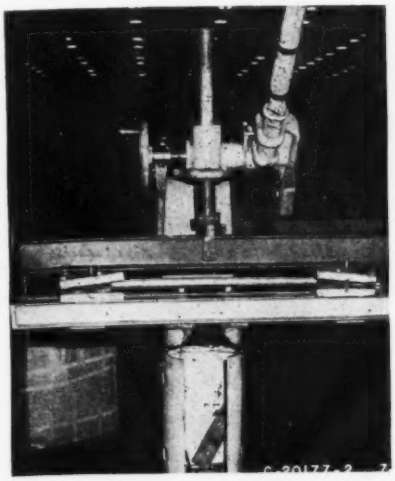
	Arizona	California	Colorado	Idaho	Montana	Nevada	New Mexico	Utah	Washington	Total
July	3,426	620	2,985	5,960	2,463	1,184	3,077	1,967	769	22,351
August	3,360	626	2,965	4,663	1,749	2,017	2,759	2,259	716	21,114
September	3,214	991	2,782	5,530	2,268	1,740	2,787	1,899	866	22,089
October (preliminary)	3,575	900	2,258	5,584	2,607	1,700	3,126	2,139	1,030	22,919

EFFICIENCY KINKS FROM WESTERN PLANTS

Production short-cuts • Worker's suggestions • Prize-winning awards

ADOPTION of a suggestion for a brace flattening block for flattening wing braces on the ends resulted in a complete elimination of rejections and made the job 100 percent efficient at the Long Beach No. 1 plant of Douglas Aircraft.

• Brace flattening block



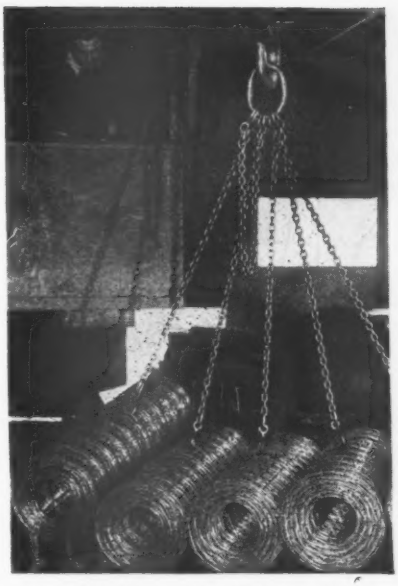
The device was originated by L. L. Stapleton, lathe leadman in the tubing department. Noticing that it was not proving satisfactory to flatten the wing brace ends in a vise, owing to the necessity for each to be flattened in exact relation to its opposite, he discovered that by using an arbor press and equipping the lower beam with flattening blocks it was possible to do the job with greater speed and accuracy.

Blocks were made adjustable as to length and size of material, and stops were set to the proper dimension for flattening ends. Other stops were located in the center part of the lower beam to assure the part being held in direct line to the end blocks. The part is held against these center blocks and the upper beam is brought down on the battening blocks.

* * *

Discovering that the cab on the crane in the welded mesh building at the Colorado Fuel and Iron Company plant, Minnequa, was on the wrong side for the craneman to see the material he was placing in or near cars for loading, Max Sajatovich, employee in the Order and Shipping Department, suggested that the cab be moved to the opposite side of the crane, or to the center, so that a clear view of operations could be obtained.

When acted upon, the suggestion, for which Sajatovich received a WPB award by the Labor Management Committee, resulted in several improvements. In addition to effecting better and faster work in loading freight cars it also brought about increased space available for stocking. It likewise resulted in removal of a safety hazard which had formed a real danger to workers below the crane.



• Cab removal upped speed

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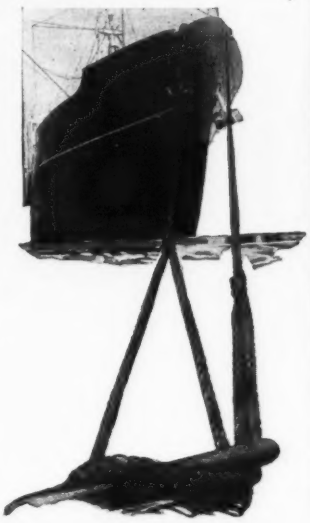

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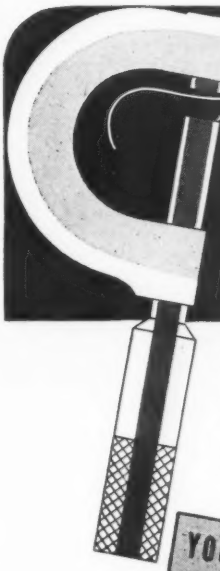

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THE WEST ON ITS WAY

ARIZONA

PHELPS DODGE MINE ELECTRIFIED—Electrification of the pit at Phelps Dodge Corporation's New Cornelia mine at Ajo, at a cost of $2,000,000, has begun. The project will take about two years. The installation includes erection of trolley poles, grade and track realignments and purchase of 13 locomotives, 11 electric with Diesel auxiliary and two straight Diesel which will be ready for initial operation by Jan., 1947. Two Diesel auxiliary engines will be installed in each of the electric locomotives to prevent interruption of work in event of a temporary power failure, and the Diesels will work in parts of the pit inaccessible to the electric locomotives. Thirty or more miles of track and all of the switching are involved in the electric installation which it is believed will increase the efficiency and modernize operation of the mine, second largest in Arizona and probably third largest in the world from standpoint of production capacity.

AVIOLA RADIO EXPANSION—Purchase of AiResearch Mfr. Co.'s Phoenix plant from RFC is announced by Aviola Radio Corporation, Glendale, Calif. The Aviola concern will move to Phoenix and production will begin by the middle of February. The company will make 6,000 radio sets and 2,000 automatic record changers daily. In addition it will manufacture a complete line of aircraft receivers and communications equipment of all kinds. Some 1,500 Phoenicians will be employed at the plant, and Arizona lumber, copper and other products will be used in the radios. Final price for the plant has not been announced.

PINE TOP MILL PURCHASED—The Globe Asbestos Company, organized by a group of California men as a subsidiary of Rheem Research Products, Inc., Baltimore, has purchased the Pine Top mill, located about a mile east of Globe, Arizona. The new owners plan to lease various properties in the district to mine asbestos which will be milled at the Pine Top plant. The plant was closed by government order before construction was completed during the war. Officers of the new company are: Dr. R. M. Thomas, pres.; L. Mills Beam, v. p.; H. E. Hall, sec.; and John Neerhout, treas. Head offices are at 170 California Street, Pasadena, Calif.

NEW EQUIPMENT FOR MINE—A 100-ton milling plant has been erected at the Sunshine lead mines 45 miles southwest of Tucson, and will soon be put into operation by the Arizona Lead Mines Company. A new concern is operating the property. D. L. Peters, 112 N. Manhattan Place, Los Angeles, 14, is pres.; Lloyd J. Seay, 453 S. Spring Street, Los Angeles 13, v. p. and treas.; and K. Healey, also of Los Angeles, is sec. and asst. treas. Concentrates are contracted to American Smelting and Refining Co.

PUBLISHING FIRM INCORPORATION — A publishing company which will publish newspapers, journals and magazines, and engage in printing, bookselling, binding and engraving, has been incorporated for $500,000 at Phoenix, to be known as the Southwestern Publishing Company. C. A. Saylor, Al Olchvary, Jack Kleck, Bryan Akers and Mavis Akers are incorporators.

NEW MANUFACTURING CONCERN — Westcraft Manufacturing Co., Phoenix, has filed articles of incorporation with the Arizona Corporation Commission. Capital stock is listed at $300,000.

GENERAL SALES EXPANSION—A new warehouse and merchandising building costing $450,000, contain 1,603,000 cubic feet of space, and located at Seventh and Grant Streets, Phoenix, will be erected for the General Sales Company.

DR. PEPPER BOTTLING FIRM MOVES—The Dr. Pepper Bottling Co., Douglas, owned and operated by Mr. and Mrs. H. C. Phillips, is now operating in its new location on Thirteenth Street. The Phillips purchased the building formerly owned by Joseph Joss.

CALIFORNIA

NEW CONCERN — Nu-World Products Co., Huntington Beach, Calif., will produce acrylic pieces, with special attention being paid to development of these products for application to the building field. The company occupies the former plant of Consolidated Vultee, and has over 13,000 square feet of floor space at its command. Gordon Samuel, formerly head of Cal-Aero Company, San Diego, is president

and general manager; Cecil Weaver, plant supt.; Richard French, office mgr.; and C. K. Castaing, designer. Weaver and French were previously in similar capacities with Rohm & Haas Co., Southgate, Calif.; and Castaing was gen. mgr. of Paramount Plastics in Los Angeles.

NEW CONTINENTAL PLANT—Continental Can Co. will erect a large plant on East 50th Street, Los Angeles, which will house the firm's paper container division. The area involved is 610x200 feet.

PAULIS PLASTICS EXPANSION—The newly organized Paulis Plastics Company, Los Angeles, plans a new building on a new plant to be erected on West Olympic Boulevard. Paulis Plastics is successor to Paulis and Multi Plastics of Los Angeles. and the reorganization places Arthur Morris as head of the firm, and D. C. Siteman as general manager. Manuel Guest is chief of the tool-room; Merryl Morton, maintenance; James Mack, production; and Wayne Buchanan, molding.

PLAS-TEX EXPANSION — A new building is now being erected by Plas-Tex Corp. at 2531 Military Avenue, Los Angeles, which will house general offices for the concern, a new chemical laboratory for development of plastic applications, and separate compression, injection and extrusion molding departments. The building which cost $175,000 makes available nearly 60.000 square feet of floor space. The company is currently at work on development of a rigid type screen for television. It has pioneered in development and manufacture of motion picture screens for process photography and viewing purposes.

MONOGRAM MANUFACTURING EXPANDS — Acquisition of the Houston Corporation, Los Angeles, by Monogram Manufacturing Company is completed. H. W. Houston remains as president of the new organization. with E. R. Livingston of Monogram as vice-pres. and gen. mgr. New management will continue to manufacture specialized motion picture development equipment. Monogram plastic manufacture will be moved to the Houston plant where operations will be expanded.

MORE ELLINWOOD EXPANSION—Ellinwood Industries has further expanded by purchase of Parts Manufacturing Company, Los Angeles, which operates one of the few completely equipped furnace brazing plants on the West Coast with two automatic electric furnaces. In addition to using Parts Manufacturing equipment on items for the Cat line of tractors, etc., the equipment will be operated for other Southern California manufacturers on a round-the-clock basis.

LOCKER PLANT—Roseville Frozen Food Bank is erecting a locker plant on Atlantic and Eggleston Streets. The main building is 60x70 feet, containing 1.100 lockers. A separate building is being erected for smoking and processing.

CLOTHING EXPANSION—Samuel Gerry, owner of the Marathon Underwear Co.. has begun construction on his $650,000 nine-story building at 910 S. Los Angeles Street. which will be occupied by concerns engaged in the needlecraft industry. The building is to be of flat-slab, reinforced concrete construction and modern functional architecture, with ample provision for daylight lighting on all floors. The building will contain 115,000 square feet of floor space.

DRY CLEANING PLANT—Plans are being figured for construction of a brick and reinforced concrete and frame dry cleaning plant 40x180 feet, at 2657 Mission St., San Marino, for Old Mill Cleaners.

FREIGHT BUILDING—Plans are being figured for construction of a one-story hollow concrete block freight station building at 1234 W. Eighth Street, Long Beach, for Atchison, Topeka & Santa Fe Railroad. Building will be 95x30 feet in area, 145x30-foot platform of reinforced steel and mesh masonry, miscellaneous iron, steel truss rafters, rolling steel shutters, steel sash, venetian blinds, glass and glazing, lathing and plastering, sheet metal tile and marble, asphaltic tile floor covering. composition roofing, painting, plumbing, heating and electrical work.

WALKER MINE MAY REOPEN—R. P. Wilson, Nevada and Texas operator, has bought the Walker mine, for many years one of the largest copper producers in California, at a foreclosure sale instituted by the International Mining & Smelter Co., an Anaconda subsidiary.

GREYHOUND TO HAVE NEW TERMINAL—Plans for a $1,750,000 modern Greyhound Bus terminal on Seventh Street. in San Francisco, are nearing completion. Facilities include air-conditioned waiting rooms, improved ticket selling arrangements, baggage and parcel checking services, restaurants. news stands, more efficiently designed rest rooms, including a special lounging room for women. Greyhound now has on order 125 new buses of latest type, costing more than $3,000,000.

ALUMINUM FURNITURE—The Aireon Manufacturing Corp. has sold its Burbank factory to Deutsch Bros. Co., of Los Angeles, who plan to use the plant for manufacture of aluminum furniture. Sale is said to be in excess of $500,000.

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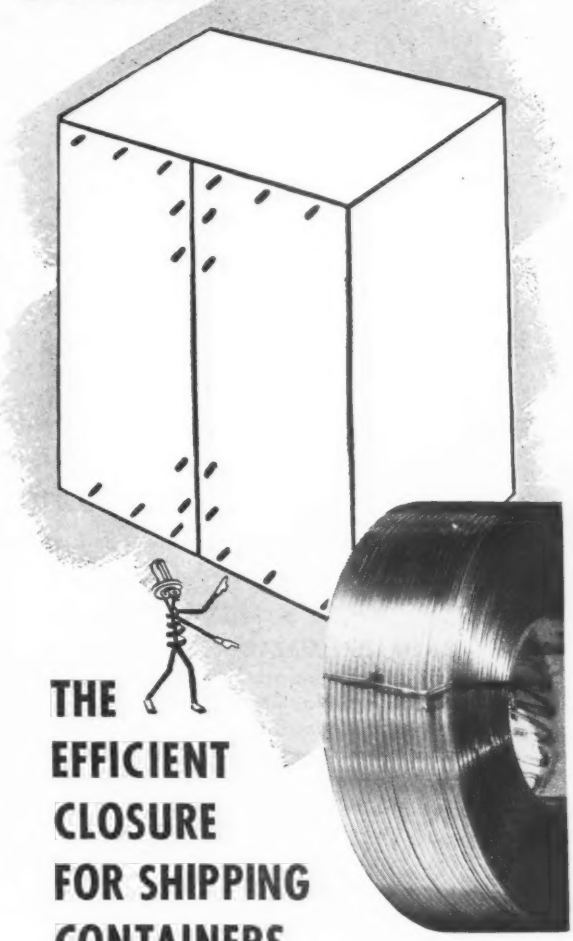

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THE WEST ON ITS WAY

FOOD MACHINERY EXPANSION—Niagara Sprayer and Chemical Co., Inc., subsidiary of Food Machinery, has begun construction of a $450,000 plant at Richmond for production of a complete line of insecticides, fungicides and allied products. Three buildings, a factory building, a service and office building, are to be constructed in about three months.

SEAT COVERS—Howard Zink Corp., Fremont, Ohio, began manufacture of automobile seat covers at 1100 W. Broadway, Long Beach, early in January. Plant occupies a two-story building and employs more than 100 persons.

SIERRA FOUNDRY OPERATING—Sierra Foundry, 6244 S. Alameda Street, Los Angeles, has begun manufacture of grey iron, semi-steel and alloy castings.

TELEPHONE FIRM TO SPEND BIG SUM ON COAST—Pacific Telephone & Telegraph Company will spend $400,000,000 for new construction and expansion over a five-year period on the Pacific Coast. Of the total, an all-time high will be expended in 1946—$90,000,000. The expenditure is more than double estimated 1945 gross plant additions of $50,000,000 and includes the following major items: land and buildings, $6,000,000; exchange central office equipment, $21,000,000; station apparatus, including lines, $22,000,000; toll equipment and lines, $12,000,000; general equipment, $4,000,000.

FOOD PLANT TO BE BUILT—Construction of a $1,000,000 packing plant has been started on San Leandro Boulevard, Oakland, where the Butler Packing Company of Seattle has purchased 10 acres. Butler makes the "Dennison" brand of foods. The plant will employ an estimated 200-500 workers, varying with the season. The company hopes to get the plant in operation early enough in 1946 to add catsup and other tomato specialty products to its lines which include chili con carne, beef stew and others. Carl F. Roberts is production manager.

SOUTHLAND TELEPHONE COMPANY PLANS HUGE EXPANSION—New construction over the next five years will involve more than 400 million dollars in the Pacific Coast area, N. R. Powley, pres. of Southern California Telephone Co., Pacific Telephone & Telegraph Co., announces. It is the largest program ever undertaken by the companies. It is aimed at restoring as rapidly as possible the fundamental essentials, provisions of the plant for growth, replacement of plant to eliminate temporary war expedients, improvement in customers' equipment, replacement of manual equipment by dial, extension and improvement of rural service, etc. The company will spend 90 million dollars in new construction during this year.

DRAGLINE DREDGE—A dragline dredge in operation at the James Creek cinnabar placer in the Aena Springs district by the Enterprise Engineering Co. is reported to be washing 1,500 cubic yards of gravel an eight-hour shift. Cinnabar concentrates are reduced to quicksilver in a furnace recently installed.

SUPERIOR SLEEPRITE COMES WEST—A million-dollar, two-story structure will be erected on Wilmington Blvd., Los Angeles, by the Superior Sleeprite Corp. It will be the largest bedding and metal furniture factory west of the Rockies and will employ from 500 to 600 persons. It will be completely conveyorized and will utilize the most modern production processes.

ENVELOPE EXPANSION—U. S. Envelope Company has purchased approximately 105,000 square feet of industrial property at Hollis and Stanford Streets in Emeryville, and commence construction of a modern one-story 80,000 square-foot building Feb. 15. The Emeryville project will be a $500,000 manufacturing plant as well as headquarters for the seven western states in sales and distribution, the Chamber of Commerce revealed. Plans call for the building project's completion by July or August. The plant will manufacture all types of envelopes, stationery, kindred paper products and drinking cups and will employ approximately 150-200 persons.

SMITH-EMERY MERGES WITH HERMAN LABORATORIES—E. O. Slater, pres. of Smith-Emery Company, 920 Santee Street, Los Angeles, announces his company's consolidation with John Herman Laboratories, 771 San Julian Street. The Herman Laboratories will move operations to the Santee Street address, and Dr. Herman will continue to perform and supervise a portion of the work, but will engage for the main part in research.

NEW QUICK-FROZEN PLANT—John Inglis Frozen Foods, Stockton, is building a new $100,000 quick-frozen plant in Modesto which is expected to be completed by April. The plant is the second unit to be put into operation. Joseph Filbin is production manager and Eugene Boone, superintendent.

AMERICAN EXTRUDED EXPANSION — Offices, manufacturing plant and warehouse will be integrated in the new $150,000 building of American Extrude Products Company, Los Angeles. It will add approximately 140,000 square feet of space for operations. Dan Sokol has joined the firm as sales manager, and Richard S. Kress, former owner of Plastics Engineering Co., as industrial engineer.

PLASTICS BOOMING — Arthur P. Sugarman, formerly of Paulis Plastics, has organized the new firm, Peerless Plastics, which is located at 720 North Broadway, Los Angeles. The concern will maintain its own tool and die shop and is equipped with Reed-Prentice machines.

TEN-YEAR DEVELOPMENT PROGRAM PLANNED — American Potash and Chemical Corp. has set aside $1 million over and above usual expenditures for a program of research and development of its Lake Searles mineral deposits. The program is aimed at greater process efficiency, development of new products which are designed to lead to an over-all higher production. A modern research building at an estimated cost of $350,000 will be added to the present administration unit at Trona. It is expected to be completed by mid-summer.

PLASTIC MOLDING — National Plastic Molders, 1655 Riverside Drive, are doing injection molding of plastic.

GREAT WEST SUPPLY BUILDING—Construction of a 5,000 sq. ft. building at 648 Gibbons Street, Los Angeles, has begun for the Great West Supply Company, office at 2802 Francis Avenue, manufacturers of hotel and restaurant equipment.

INDIA PAINT EXPANSION—India Paint & Lacquer Company, 5894 So. Central Avenue, Los Angeles, makers of lacquer, enamel, varnish and allied lines, have acquired three and a half acres at the n.e. corner of Imperial Highway and Alameda, Lynwood, where construction has begun on a building 152,775 sq. ft. in size. Program calls for seven buildings to be erected during the next few years.

POMONA TILE EXPANSION—Pomona Tile Mfg. Co., headquarters at 629 N. La Brea Avenue, Los Angeles, is constructing additional plant at 11047 Van Owen Street, North Hollywood. The new building is the first unit of the North Hollywood plant and will contain 60,000 sq. ft. for expanded production of bath, floor and wall tile.

PAYNE FURNACE TO BUILD—An expansion program which entails construction of two major additions totaling 64,000 sq. ft. as well as considerable new equipment has been begun by Payne Furnace Company, Beverly Hills.

CHROME HOUSEHOLD FURNITURE—Virtue Bros. Mfg. Co., 1650 Long Beach Avenue, Los Angeles, is constructing a new plant at 5701 W. Century Blvd., to which address the company will move upon completion. The building will contain 60,000 sq. ft. of floor area.

HEAT EXCHANGE EQUIPMENT—Drayer-Hanson, 3301 Medford Street, Los Angeles, has acquired 6½ acres where buildings containing 110,000 sq. ft. of floor area have been erected, doubling the manufacturing area. New equipment has been installed for production of heat exchange equipment.

TWENTIETH CENTURY FROCKS—Property at 30th and Grand Avenue, Los Angeles, has been acquired by Twentieth Century Frocks, 719 S. Los Angeles Street, for construction of a 7-story, all-glass building, costing $750,000, within the next few months.

GENERAL ELECTRIC MOVES—General Electric Co. has moved its machine shop to 6900 Stanford Avenue, Los Angeles, where 40,000 sq. ft. of floor area is available for offices, storage and repair work.

BOX MANUFACTURE—Angelus Paper Box Co., 751 No. Broadway, Los Angeles, has purchased 12 acres at 6001 S. Eastern Avenue, on which it expects to erect the first unit of a plant to contain over 38,000 sq. ft. for manufacture of corrugated shipping cases, folding and setup boxes.

MOTOR TRUCK COMPANY AT EMERYVILLE — International Harvester Company's motor truck division has established its first Pacific Coast truck manufacturing plant in Emeryville, Calif. The plant is scheduled to be turning out new trucks late in February. New trucks produced at Emeryville will be sold and serviced in Oregon and southern Washington through the company's motor truck branch in Portland. The Emeryville works will produce six models of heavy-duty trucks.

CANNERY EXPANSION—Clear Lake Cannery Co., pioneer packer of Lake County string beans, has been purchased by Don Martinelli, formerly connected with Flotill Products, Inc., of Stockton. The business has been renamed Lake County Canning Co., and for the first time in the history of the plant peaches and Lake County pears will be packed.

CONCRETE BLOCK PLANT—M. G. Dickson, B Street, Crescent City, plans construction of a concrete block manufacturing plant at corner of Second and N Streets, Crescent City.

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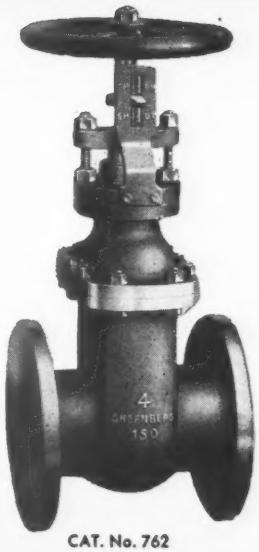

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RIDGID

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THE RIDGE TOOL COMPANY · ELYRIA, OHIO, U. S. A.

THE WEST ON ITS WAY

GROUND BROKEN FOR FORD PLANT—Ground has been broken on the 36-acre site at the southwest corner of Slauson and Eastern Avenues in the Central Manufacturing district of Los Angeles for the new $4,000,000 plant of the Ford Motor Company. It will be used for the assembly of Mercury and Lincoln cars, and will be completed in about six months. The plant, designed to assemble 250 automobiles daily, will give employment to 1,500 persons. Three one-story steel and reinforced concrete buildings and a one-mile testing track will be built. The assembly and parts depot building will be 300x840 feet. The other structures will house executive offices, show room, oil and paint storage and provide garage facilities. The plant will be served by the Los Angeles Junction Railway.

The Army's Richmond tank depot which has been operated by the Ford Motor Company in its Richmond assembly plant, has been turned back to the company for assembly of civilian cars and trucks. During its operation for the military it processed for shipment 55,980 tanks and combat vehicles and assembled almost 50,000 jeeps under an army ordnance contract.

BARBER TAKES OVER COMPANY—Donald B. Barber, formerly a partner and operating as the Plastic Coating Company, 3421 East Twenty-Second Street, Los Angeles, has acquired the firm and is now operating under the new name of Barber-Webb Co., and moves to a new location at 8686 Ream Avenue, Southgate. Allyn E. Webb is manager.

NEW NAME FOR SHELL UNION—Shell Chemical Corp. has been incorporated in Delaware for the purpose of taking over and continuing the business of Shell Chemical division of Shell Union Oil Corporation. J. Costermeyer heads the new concern, a wholly-owned subsidiary of Shell Oil. The head office will be located in San Francisco. The new concern was organized in preparation for a large expansion program in chemicals and will continue operation of the three chemical plants in California at Shell Point, Martinez and Dominguez. G. Oostermeyer, A. E. Lacomble, W. P. Gage, L. V. Steck and J. W. Walton, all of San Francisco, are directors.

NEW COLD STORAGE PLANT—Stillwater Orchards Co., Courtland, plans construction of a cold storage plant costing $125,000 at Hood, Sacramento County, California.

FURNITURE WAREHOUSE—F. W. Corder, Inc., plans construction of three-story furniture storage warehouse costing $60,000 on the south side of Bancroft Way, Berkeley.

WINERY—Del Rey Co-operative Winery Association, Fresno, of which Lee Bertelsen is president, plans construction of $500,000 winery. The building constructed will be of reinforced concrete.

TO REBUILD PACKING PLANT—Corona Foothill Lemon Company, Pearl Street, Corona, will build a new plant to replace its plant destroyed by fire Dec. 20. Cost of construction is estimated at $200,000.

CARNATION MILK—A milk processing plant to be built at Bakersfield for the Carnation Company will cover an area of 125x150 feet, will be of cement block wall construction, and have steel trusses, cement floor, steel sash, composition roofing, tile flooring, interior plaster, refrigerator room and cork insulation.

RED RIVER POWER INTERESTS—Pacific Gas & Electric Co. has purchased property of Red River Lumber Company at Redding worth $2,564,000. The property includes the Hat Creek power houses No. 1 and 2, the power line from Hat Creek No. 1 to Westwood; water rights on Hat Creek and Rising River in Shasta county; Mountain Meadows reservoir, Lassen county, and Hamilton Branch hydro-electric project on Hamilton Branch Creek, tributary of the Feather River in Plumas county. A tie-in line from Lake Almanor to Westwood built by the PG&E will provide standby power for Westwood, Susanville and Chester in case anything happens to Hat Creek power.

WESTERN PACKAGE EXPANSION—The old Shellmar Products Co. property at 510 S. Arroyo Parkway, Pasadena, has been purchased by Western Package Products Co., for the purpose of expansion of its flexible packaging activities. Plans call for addition of considerable equipment. The new facility of the Los Angeles concern will specialize in the manufacture of acetate and cellophane bags. Shellmar's new plant is at South Gate in suburban Los Angeles.

PLEASURE BOAT PLANT—Drake Craft Boat Building Co., 162 Glendora Avenue, Long Beach, will erect a showroom and plant for the manufacture of commercial and pleasure boats at Avalon Blvd. and 223rd Street, Wilmington; estimated cost, $100,000.

FACTORY AND OFFICE COMBINED — Morris Rosenberg has awarded the contract for construction of a one and part two-story factory and office building at Fiftieth and Soto Streets, Vernon, 126x250 feet in area, of reinforced concrete construction.

NEW FACTORY—Ross & Co., Beverly Hills, has awarded the contract for its six-story reinforced concrete factory building at 528 E. Eighth Street, Los Angeles, 76x100 feet in area, to cost $200,000.

CABINET WORKS FACTORY—Standard Cabinet Works, Inc., will have a factory building constructed at 1919 McGarry Street, Los Angeles, of reinforced concrete and brick construction, and costing $60,000.

COLORADO

TRAILMOBILE COMPANY TO OPEN DENVER FACTORY BRANCH—Trailmobile Co., Cincinnati, Ohio, plans to establish a factory branch in Denver. The company has leased the office building and garage of the Gordon Construction Co., 1900 Thirty-first Street, pending selection of a permanent size and construction of plant facilities. The Denver branch will operate as a direct factory outlet for sales and service to users of trailer equipment. When construction of plant facilities are completed, sometime in 1946, the company intends to manufacture tank units for tank trailers to handle petroleum products. The sales and service unit will employ approximately 50 men, and when plant facilities are completed will employ a total of from 300 to 400 persons.

DENVER ORDNANCE PLANT COMPLEXION MAY BE CHANGED—The entire insurance department of the national Veterans Administration, now located in Washington, D. C., and employing between 500 and 600 persons, will be moved permanently to Denver next summer and placed in one of the buildings at the Denver ordnance plant, according to word out of Washington. Two buildings at the ordnance plant have been made available to the Administration.

A private corporation, Webb & Knapp, Inc., of New York, of which William Zeckendorf is head, and R. B. Harding, Denver representative, have underway a deal by which they will make a cash offer to the government for a portion of the plant, land, buildings and equipment, for conversion, at a cost of several million dollars, into a complete modern city to house at least 5,000 persons. The scheme is looked on in Denver as one of the most ambitious yet conjured to solve Denver's housing problems. Plans call for apartments, individual homes, stores, a post office, churches, a movie theater, a convention hall, a golf course, an airplane landing field, and an attractive subdivision for new homes to be added later. The property already has its own sewage system. It obtains water from the city of Denver.

PUBLIC SERVICE EXPANSION — The Public Service Company, Denver, plans to spend $3,075,000 in 1946 for new construction and improvement to existing facilities. Items include $475,000 for extensions for present gas system; $130,000 for new tie lines; $2,750,000 to be spent for additional transmission lines, substations, distribution lines and equipment that will improve and enlarge capacity of delivering electric energy to customers.

NATURAL GAS EXPANSION — Improvements totaling $1,750,000,000 to compressor station equipment are planned by the Colorado Interstate Gas Company to make available a nine per cent increase in the amount of natural gas available for consumption in Denver, northern Colorado and Cheyenne. Improvements include a half-million-dollar compressor station 10 miles east of Colorado Springs and installation of additional compressors and engines at six other stations from Bevins, Texas, to Devine, Colo.

SPRINGS NEWSPAPER MODERNIZATION—The $125,000 modernization program of the Colorado Springs Gazette and Telegraph are nearing completion. A new rotary press has been installed.

TELEPHONE COMPANY PLANS GIANT EXPANSION—Mountain States Telephone & Telegraph Company plans on spending 18½ million dollars for new construction in its territory during 1946, and 75 millions over the next five years, according to an announcement by the Mountain States Telephone & Telegraph Company. Major items in 1946 program include telephone instruments and apparatus, $6,200,000; exchange cable and lines, $5,000,000; central office equipment, $4,800,000; building additions, $2,000,000, and toll lines, $1,500,000. The company supplies service in Colorado, Arizona, Idaho, New Mexico, Montana, Utah, Wyoming, and El Paso, Texas.

SURPLUS PROPERTY LISTS—One Idaho and three Colorado airports are among 44 in the country which the government expects to declare surplus. The airports, all of which cost more than $5,000,000, will not be disposed of until first offered to state and local governments. Included are: Army Air base, Pueblo, $9,799,000; Peterson Field, Colorado Springs, $8,338,000; Army Air base, La Junta, $6,093,000; and Gowen Field, Boise, Ida., $5,943,000.

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THE WEST ON ITS WAY

IDAHO

CONCRETE TILE FIRM—Empire Concrete Products are erecting a factory for the manufacture and sale of hollow concrete building tile at 237 West Eighth Street, Moscow, on the Northern Pacific right-of-way. Co-owners are Fred H. Simkin and Leo F. McCarty.

SUNSHINE WORK RESUMED—Work has been resumed on two projects on the western end of the Chester-Silver syndicate vein of the Sunshine Mining and Silver syndicate which was halted when fire broke out in the Sunshine workings in December. Work cannot be resumed in other parts of the mine as yet.

NEW MACHINERY SERVICE—L & K Machinery Service of Portland, has leased a building at 18 Eleventh Avenue, North, in Nampa, for a branch office of their company. The company repairs and installs laundry and dry cleaning equipment, sells supplies, and offers services in repair installation and advice of a plant engineer for modernization and rebuilding. E. A. Paul is manager.

BUNKER HILL INSTALLS HOIST—One of the largest underground mine hoists in United States is being installed about two miles into the mountain by Bunker Hill & Sullivan Mining & Concentrating Co. The hoist equipment weighs 470 tons. The new hoist will permit mining to a depth at first of 4,000 feet below the Kellogg tunnel. The company has spent some $800,000 for the hoist and its installation, and has spent more than 1½ million dollars in improvements to its smelter and metallurgical plants, including construction of an antimony-bismuth unit and a fume plant to recover cadmium metal from lead fume.

DAVIS PACKING EXPANSION—Extensive remodeling and repair work are under way at the Davis Packing Company plant west of Boise. A new building is planned in the spring as part of an expansion program that will extend over a period of two or three years.

QUICK FREEZE PLANT—J. R. Agen company, Seattle, has commenced work on its big quick freeze plant at Nampa which is expected to cost approximately $200,000, including equipment, and to give employment to 200 persons six months out of the year. The structure, 421 x 80 feet, is expected to be completed by June 1. The plant will process vegetables and fruits for carlot shipment.

MONTANA

DIESEL SHOP IN OPERATION—Great Northern Railway's new diesel shop at Havre, Mont., first built by the railway for exclusive servicing and repairing of diesel locomotives, is now in operation. Another smaller diesel shop is under construction at Great Falls and will be completed by mid-1946. The engines moving freight trains through the Rocky Mountain country between Havre and Appleyard, Wash., are serviced at the Havre plant.

FOUR MILLION DOLLAR PROGRAM AT RUBY HILL—Development and equipment for the historic Richmond-Eureka silver-lead properties will cost an estimated $4,000,000. Plants to be installed include large cyanide and roasting units and a flotation mill able to treat 1,000 tons of ore daily. Four Diesel units were installed at the mine last summer. Mine equipment includes a double-drum electric hoist. The main Fad shaft is being sunk to an approximate depth of 2,500 vertical feet.

NEVADA

LODI PLANS MINE EXPANSIONS—Mines of the Lodi Fertilizer Co., of Lodi, Calif., in the vicinity of Pyramid Lake, Nevada, will be expanded. New operations will be commenced at Zenobia on the Southern Pacific line and at Sand Pass and Flanagan on the Western Pacific main line. A sacking plant is also planned at Zenobia, pending availability of sacks, housing and necessary machinery. Mining will be done by open-cut methods, using shovels and trucks, surface stripping being accomplished by carryalls and caterpillar tractors. The company mines calcareous marl which is becoming increasingly valuable as a soil conditioner and sweetener. The Lodi concern also owns large phosphate holdings in northern Utah, with immediate production scheduled to begin there.

SURPLUS PROPERTY WILL SELL—The Basic Magnesium plants at Las Vegas and Gabbs, Nev., valued at $132,700,000, have been approved for sale or lease for purposes other than magnesium production by the Surplus Property Administration.

CYANIDE PLANT—C. F. Rose and C. L. Winnery have taken a lease on the old Rye Patch mine, one of Pershing county's most famous silver-producing properties during the last century, and plan the building of a 50-ton cyanide plant. Dump and new ore will be treated in the mill. Preparations are being made to lay a track to the southwest in the old workings to the point where the new formation has been found. A 100-foot winze will be sunk.

U. S. VANADIUM'S MILL ENLARGED—New units will increase the milling capacity of the present 200-ton concentrating plant of U. S. Vanadium Corp. at Winnemucca. The new units will provide for an increased production schedule.

OLD DAISY MINE CHANGES HANDS—Mark Bradshaw, mining engineer, has completed negotiations for the purchase of the Daisy Mine at Goldfield, one of the noted producers of high-grade gold ore during earlier years of district activity. Plans for the operation of the property involve sinking one or more of the productive shafts to greater depths and construction of a cyanide mill of substantial capacity, designed to operate as a custom plant and to treat the product of other mines in the district.

TIMBER PURCHASE—John Fossett, Reno, has purchased approximately 13,000 acres of timberland from the Silver Fork Timber Co. in El Dorado County, Calif., for use by the Placerville Lumber Co. Cost of the timberland was close to $500,000 and will enable the Placerville company to cut on a sustained yield basis.

PLANT AT IONE UNDER CONSIDERATION—Harold P. Newman, formerly operating in Arizona with associates as the Desert Mining Company, is reported to be operating on his own account a mining property near Ione in Northern Nye County, where he plans mill construction.

DIAMOND DRILL—A 700-foot diamond drill will be installed in the spring at the mine of the New Verde Mining Company, Goldfield.

NEW MEXICO

NEW MANUFACTURING COMPANY—The White Manufacturing Co. of Albuquerque has been granted a charter by the State Corporation Commission, Santa Fe, with $250,000 authorized capital stock. Incorporators listed are O. W. Bailey, W. A. White, and Pearce C. Rodey.

GAS & ELECTRIC EXPANSION PLANNED—A $615,000 program to expand natural gas and electric facilities in Albuquerque by Albuquerque Gas & Electric Co., is planned. The program consists of a joint project with Southern Union to construct new mains to the city from the trunk line tapping the San Juan gas field, with Southern to spend $100,000 and Albuquerque G & E to spend $150,000; expansion of electric service through reconstruction of main overhead systems, installations of two new substations and other additions for a total outlay of $215,000; general extensions and improvement of service, $215,000. Work will begin immediately.

BUSINESS BLOCK—Expansion of the McDuffie business and office building project at Central and Girard, Albuquerque, will provide 29 stores and 49 offices and will be completed this year at a cost of $250,000. A two-story building will be erected, with nine stores on the ground floor and 30 offices on the second floor. It is of modern design.

TELEPHONE BUILDING TO BE ENLARGED—The Mountain States Telephone & Telegraph Co. plans a building expansion at Albuquerque. Two additions will be made to the present telephone building, one a two-story addition on Copper Street and the other a one-story addition along an alley just south. The additions will provide room for offices as well as dial and long distance equipment.

UTILITY SALE—Sale of the United Power Co. and the United Water Co. of Santa Rosa to the Southwestern Public Service Co. at a combined cash price of $147,000. has been approved by the State Public Service Commission.

NEW CANNING PLANT IN ALBUQUERQUE—The Domingo Packing Co., a newly established Albuquerque cannery, has begun with the operation of canning pinto beans, chili sauce, pinto beans plain, chili con carne with beans, baby lima beans, and black-eyed peas. By summer the plant expects to add carrots and green peas to the list. Jacob Schrock, Clarence Schrock, and Roy F. Menning are incorporators. The plant, formerly the Jenson Bean Co., is located on Rio Grande Blvd., about three-quarters of a mile north of Candelaria Road. The plant is streamlined and possesses modern washing equipment.

HARGON ENGINEERING COMPANY FORMED—James I. Harvey, Jr., and Charles B. Gonsales, both of Sante Fe, have formed the Hargon Engineering Company which is engaged in making mobile toys. The company plans to expand its line to include mass production of engineered items in wood, metal, and plastic. The firm is operated at 906 Hickox Street, Santa Fe. Harvey is production manager and Gonsales, is business manager.

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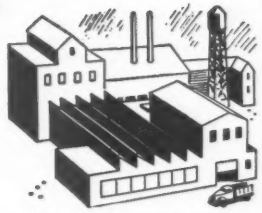

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THE WEST ON ITS WAY

OREGON

WEYERHAEUSER PURCHASES MILL SITE—Property of Kruse & Banks Shipbuilding Company, considered one of the choice industrial sites at Coos Bay, has been purchased by Weyerhaeuser Timber Company for erection of what is thought to be one of the largest mills in the region. The 30-acre area lies between the Irwin & Lyons sawmill and the Mountain States Power Company. It has wharfage space on one side and railroad facilities on the other. Negotiations are under way for purchase of property adjacent to the shipyard which is owned by W. T. Culver Company and Coos County.

QUICK-FREEZE PLANT—Plans and specifications for construction of a quick-freeze plant at Ontario, involving an estimated one million dollar outlay by the frozen foods division of the Bridgeford Company are complete. Headquarters of the Bridgeford concern are in San Diego. The building proposed will be 150 x 410 feet, including processing, quick-freezing, packaging and cold storage facilities. The plant will have a freezing capacity of 10 tons of food an hour, making it one of the largest and most efficient plants in the world, its general manager, Harry M. Daum, believes.

NEW KILNS—The Columbia Brick Works, Salem, expects to start work on several new dry kilns at its Sylvan and Gresham plants shortly, as part of a $50,000 expansion program proposed by the company.

CROWN WILLAMETTE PAPER COMPANY PLANS BIG EXPANSION—Plans of the Crown Willamette Paper Company call for construction of a four and a half story coating preparation plant, a 75-ton bleach plant, a new plant designated as "Mill F" and reconstruction of Mill D, at a total cost approaching $6,000,000 to be erected at Oregon City.

NEW MILL READY—The Fir Manufacturing Company's new lumber mill at Myrtle Creek, recently constructed to replace one razed by fire, has begun operations. The electrically operated plant has a daily capacity of 175,000 board feet. Installation of a plywood manufacturing unit and utilization of wood waste are embraced in plans for later development.

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QUICK FREEZING PLANT—Bridgeford Company, San Diego, has commenced construction of its $750,000 quick-freezing plant at Ontario, Ore., for the purpose of freezing lima beans, peas, corn, berries, asparagus, spinach, and carrots. Percy Palfreyman who was formerly with Royal Canning Co., Silverton, is manager.

GENERAL METALWARE COMPANY EXPANSION—Galvanizing facilities have been added to the Portland branch of General Metalware Co. The concern will manufacture a line of hot dipped galvanized housewares and building supplies. Part of the expansion program is construction of a second-story warehouse, 50 ft. x 180 ft.

NEW LUMBER SUPPLY WAREHOUSE—McCready Lumber Company, Portland, plans to build and stock a new supply warehouse at N. E. 84th Avenue and Halsey Street, Portland. The McCready company will build on 28 lots.

REBUILDING PLANT—Cheney Oregon Lumber Company at Central Point has rebuilt its plant and resumed operations, according to Francis I. Cheney of the firm. The new plant will cut 40,000 board feet daily. Main output will be concentrated in 2 x 4 pieces. The company operates similar plants at Tacoma and Raymond, Wash., and Greenville, Calif.

TO MANUFACTURE CHIMNEY BRICKS—John Winterhalder and R. B. Albaugh, Medford, have established a plant at Eagle Point for the manufacture of chimney bricks out of pumice. The bricks, molded with tongue and groove, make possible the building of a chimney without the use of mortar.

PAPER MILL BUYS TIMBER—The Oregon Pulp & Paper Company, Salem, purchased all timber holdings, logging and lumbering operations and equipment of the Charles K. Spaulding company, for a reported $400,000. The Spaulding concern has operated in Oregon for more than 55 years. The name will be retained by the purchasers. Included in the transaction were 100 million feet of timber in Polk county together with logging equipment, the sash and door factory and retail lumber yard at McMinnville. Also included was approximately 50,000 acres of logged-off land. The Oregon company has expanded $1,200,000 in new investment properties within recent months. The company has more than 250 million feet of timber in the North Santiam district.

TWO SHIPS FOR PACIFIC EXPLORATION CO.—Two 100-foot steel hulled vessels for the Pacific Exploration Co., for fishing in north Alaska and south Pacific waters have been ordered from the Astoria Marine Construction Corp. of Astoria, by the Reconstruction Finance Corp. Certain experimental work in fisheries will be undertaken by the company for the Government. Gunderson Bros. of Portland will build the steel hulls.

PLASTICS CONCERN—D. L. Grant and M. R. Roth, both of Portland, plan to establish a new plastics concern in Portland. The firm, incorporated for $50,000, will manufacture molded plastics products and equipment, including dies.

OPERATIONS TO START ON SYKES CREEK—Baker Brothers and Jones Mining Company plan to start mining and milling operations from Sykes Creek property in Jackson County, by March. The Baker Bros. Co. plans to install a 700-ton cyanide plant. Mining will be by power shovel and bulldozers at the lode property. Equipment is being installed to handle between 1,500 and 2,000 yards of gold-platinum bearing gravels daily, using a dragline and washing plant. Owen Jones, Box 484, Grants Pass, is manager, and Frank Gilhouse, Grants Pass, is supt. of placer operations. Erle C. Annes, Box 444, Grants Pass, is chief mine engineer.

FOREST SHOP SHIFTED TO MEDFORD—The regional central repair shop of the United States Forest Service has been moved to Medford from Grants Pass. The shop is located in a large building formerly occupied by the Army Ordnance Department.

FRANK STATIONERY AND PRINTING TO EXPAND—Plans have been completed by Frank and Mike Ierulli, of the Frank Stationery and Printing Co., Portland, to greatly enlarge the facilities of the company. The concern has acquired the Sunset Press which it has combined with the business.

NEW ASPHALT PLANT—The Shell Oil Co. has filed application for permission to construct an asphalt plant at Willbridge terminal. Cost of the Shell plant is estimated at $200,000 and will be located adjacent to existing Shell facilities on Front Street. Field construction began Feb. 1, and construction is expected to be completed by midsummer.

JOINT WAREHOUSE—The Northwest Grocery Co. of Oregon, Ltd., wholesale grocery distributors, plan construction of a large warehouse in Portland. G. T. Parker, mgr. of Northwest Grocery Co., R. C. Stratford, Whitcomb, Buell & Stratford, certified public accountants and tax consultants, Pacific Building, and V. V. Pendergrass, of Pendergrass, Spackman & Bullivant, attorneys, are members of the building corporation which plans to build the warehouse.

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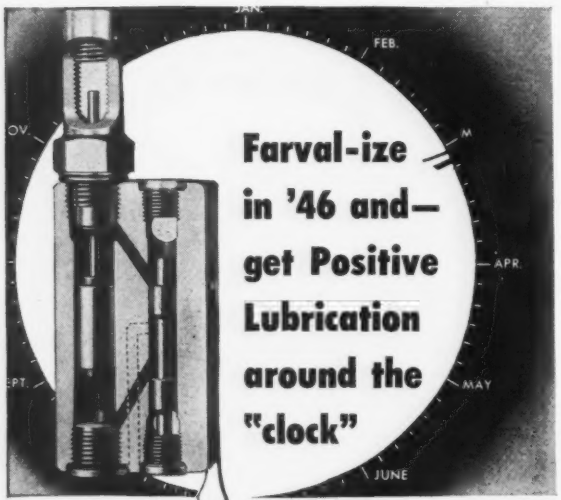

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THE WEST ON ITS WAY

SOUVENIR FIRM GETS FACTORY—Howe Souvenir Manufacturing Co., Waldport, has let the contract for construction of a two-story 32 x 60-foot building on the east side of the Coast Highway two blocks south of the Alsea highway junction. The second story will be used for offices and a basement will be provided for storage purposes.

NEW BOTTLING PLANT—Canada Dry Ginger Ale Company plans a $200,000 branch plant at 4370 N.E. Halsey Street, Portland. The new plant, incorporating the finest materials, including some enamels seldom used in the Northwest, and scheduled to be of the most practical and modern design, will have a steel frame with concrete exterior walls, enameled frame interior panels, structural glass inside and out, and steam heating from an oil-fired plant. The main building, 200 feet square, and garage wing 60 x 80 feet in area, will have exteriors of glazed tile with aluminum trim and heat-resistant glass.

RURAL POWER LINES—Columbia Basin Electric Co-operative at Heppner, Ore., has been loaned $510,000 by the REA to establish rural power lines in Morrow County.

WASHINGTON

NEW STEEL FABRICATION PLANT—William J. Duthie, president, Standard Steel Fabricating Co., Inc., has purchased a 2.2 acre site in the industrial area of Harbor Island and will erect a modern steel fabricating plant. Mr. Duthie has been active in steel fabrication and construction work in the Pacific Northwest for nearly 40 years.

CENTRAL PROCESSORS & BRINERS TO EXPAND LINE—Newcomer in Northwest food processing, the Central Processors & Briners, Ellensburg, which during 1945 brined around 7,000 barrels of cherries and quick-froze a million lbs. of Elberta peaches and a half million lbs. of frozen squash, plan to freeze prunes and equip to can peaches, prunes, and tomatoes.

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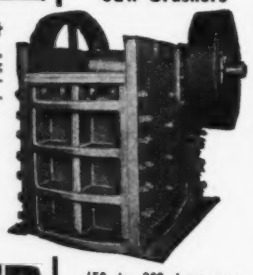

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2915-17 North Market St., ST. LOUIS (6), MO.

MINING FIRM CHANGES NAME—Metaline Consolidating Mining Company, Newport, has changed its name to Metaline and Pine Creek Consolidated Mining Company. Mining claims of the company are located near Z Canyon in the Metaline mining district. W. R. Bellows, Spokane, is president, and H. S. Johnston, Spokane, is secretary.

CONCRETE BLOCK FIRM OPENS PLANT—The Mortarless Block Co., Yakima, makers of an interlocking block used in all types of construction, plan a plant at 2205 South First Street. Alden Flint will be manager. The plant will include a 28 x 44 foot unit and a 20 x 72 foot steam room will be capable of turning out about 5,000 of the building blocks daily. The blocks, 16 inches long and from 6 to 8 inches high with a 6-inch width, are used for all types of construction, including homes, warehouses, and storage units.

UPHOLSTERING COMPANY TO GET NEW STORE—The Seattle Upholstering Manufacturing Company, 1107 Pike Street, has announced plans for construction of a three story furniture store to cost $60,000 at 1101 Pike Street, Seattle.

WESTWOOD FURNITURE EXPANSION—Westwood Furniture Company, Tacoma, plans construction of a 120 ft. by 310 ft. one-story, $60,000 factory at 3301 South Lawrence Street. Equipment will include a railroad siding in the yards and fire fighting equipment.

STOKELY VAN CAMP EXPANSION—Negotiations for a contract between Bellingham Cold Storage Co. and Stokely Van Camp Co., Oakland, which will give Bellingham one of the largest fruit and vegetable processing plants in the Northwest have been entered into at Bellingham. Under terms of the lease, the company will lease from the Port of Bellingham part of a warehouse 57 x 224 feet for use by the Stokely operation. Work on the cold storage plant has started.

WYOMING

UNITED AIR LINES PLANS RETURN TO CHEYENNE—Plans to return facilities and personnel making up United Air Lines' Denver repair base to Cheyenne are announced by William P. Hoare, manager of UAL's Cheyenne maintenance base. Plans call for United to move into the modification center which Cheyenne is to acquire from the federal government. The move hinges on ability of Cheyenne to provide proper housing for United's workers. Transfer to Cheyenne from Denver will take a year to a year and a half to accomplish. United now has its present repair base at the municipal airport.

HUSKY OIL COMPANY LEASES—Twelve thousand acres of land in the South Elk Basin have been leased by the Husky Oil Company of Cody which plans to intensify wildcat operations for oil in the spring. It will be Husky's initial entry into the Elk basin field.

CHIEF OIL WAREHOUSE—Chief Oil Corp., plans a warehouse of cinder tile and steel, including a bottling plant, at 1221 W. 16th Street, Cheyenne.

CASPER REFINERY WORK TO START—The $6,000,000 remodeling and construction program at the Texas Company refinery east of Casper is expected to start early in February. Approximately 1,000 jobs will be open when the program starts.

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. . . assures complete sanitation in drinking water facilities. Refreshing drinking water aids in maintaining good health, and good health brings efficiency and better production. Install HAWS Drinking Water Fountains, Faucets and Electric Ice Water Coolers now and obtain complete drinking water satisfaction.

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WESTERN TRADE WINDS

NEWS ABOUT THOSE WHO DISTRIBUTE AND SELL INDUSTRIAL EQUIPMENT AND MATERIALS

California Wire Cloth Corporation is to spearhead the **Colorado Fuel & Iron** and **Wickwire Spencer** sales operations in the three Pacific Coast states and Nevada as well as its own line, as the result of the recent visit to the coast of **Perry Holder**, president of the parent company, **Colorado Fuel & Iron Corporation. S. C. Pohlmann** is vice-president and general manager of California Wire Cloth and **J. A. Old**, who had been sales manager for Wickwire at San Francisco, becomes sales manager in the new coast set-up. Assistant sales managers are **H. R. Merriam** and **R. W. Browne** of the California Wire Cloth staff and **Fred Hanson**, formerly the CF&I man at San Francisco. **Harold Hanson** will head up the Los Angeles office, **George Skarich** at Seattle and **Tracy Wahrlick** at Pueblo. **L. F. Quigg**, executive vice-president of CF & I, who had been in charge of mill operations at Pueblo, is also the president of California Wire Cloth.

Pacific Marketing & Research, Inc., has been organized to serve the Pacific Northwest as a new market research organization which will take on comprehensive assignments in product or market analysis. **Frank E. Manning**, president, has offices at 208 Hubbell Building, Seattle, headquarters of the firm. An office has been opened in Portland in the Spalding Building. The organization plans to open offices in San Francisco and Los Angeles as well. Other officers of the firm are **Edith Curtiss**, vice president, and **Ruth Gaggin**, treasurer. The concern handles preparation of questionnaires, supplying and directing of interviewers to report on customer reactions to a given product, development of market studies and sales promotion campaigns.

The Fruehauf Trailer Company has just opened a new branch in San Diego to service truck-trailer users in that city, the Imperial counties and lower California. **T. O. Davis** is branch manager in San Diego, with offices at 2380 Main Street. The new building, shown above, is 122 feet by 175 feet, of reinforced concrete construction and offers every facility for maintenance and repairs to trucks and trailers. It was built at a cost of $150,000.

Denny Farnsworth is the new sales representative of the **Electric Storage Battery Company** assigned to the Denver branch located at 810 Fourteenth Street, Denver, Colo. Mr. Farnsworth has just been released from the United States Army where he held the rank of major. He served five years.

R. C. Methers heads a Portland branch office at 329 NW Eleventh Street, for **Paragon Packing Company**, Astoria, which has recently completed its new office building in Astoria. The company handles fish treats, etc., in specialty packing.

Frank Wallace, senior associate of **McKinsey & Company**, 235 Montgomery Street, San Francisco, management consultants, has been promoted to principal in the firm. Mr. Wallace, a certified public accountant, specializes in the fields of management controls and organization. Prior to joining McKinsey & Company a number of years ago, he was associated with one of the large accounting firms.

Major Merrill S. Hugo who has been recently released by the Army, is establishing an office as a consulting manufacturing engineer specializing in inspection, gaging, gage design, gage requirements, dimensional control, quality control and related manufacturing problems. While with the Army he was in charge of the Ordnance Gage Laboratories and similar activities for the San Francisco Ordnance District which covers nine western states. Major Hugo may be addressed at P.O. Box 273, Mountain View, California.

L. G. Berger W. E. Lee

Westinghouse Electric Corporation has made several changes in its Western territory. **Louis G. Berger**, Los Angeles, has been named Southern California District manager for the Westinghouse Electric Supply Company with headquarters at Los Angeles. He succeeds **B. S. Manuel**, vice-president of the supply firm, who continues as vice-president with overall responsibility for operation of the Southern California, Northern California and North Pacific Districts of the company. He has been assistant district manager since February, 1945.

W. E. Lee has been appointed manager of the company's Arizona office at Phoenix and has taken up his new duties. He has been stationed in Arizona as sales engineer to the mining industry with headquarters in Phoenix since April, 1945, transferring from the firm's Los Angeles office.

Lee joined Westinghouse in 1936 after graduating from Montana State College. He was sent to San Francisco in 1938 as sales assistant and served as such in several Western cities before going to Los Angeles.

Frank L. Patty, Jr. is manager of the new San Francisco office of **National Series Distributors.**

Marion H. Freedman has been appointed division manager of the Seattle office of **Columbia Steel Company**, a U. S. Steel Corporation subsidiary, succeeding **E. J. Howay** who is retiring after 39 years of service.

Freedman started with the corporation in 1920 in San Francisco. In 1931 he was transferred to the Seattle office of Columbia Steel as a salesman, specializing in tubular products. He has served as assistant manager of sales and sales manager. As division manager he will have charge of all sales activities in the state of Washington.

The Bozeman Canning Company has changed its name to **PictSweet Foods, Inc.**, as a result of the "growing popularity of the PictSweet frozen and canned food line."

• A. K. Granrud (left), recently appointed district representative of Saverite Engineering Co., greets Fred M. Smith of Lee Smith & Sons, distributors of Saverite products in Eureka. Granrud has operated various industrial and utility power plants in California, and served The Red River Lumber Co. as boiler inspector.

The **E. J. MacDonald Company**, 805 West Fourth Street, Reno, Nev., has been appointed Nevada and Eastern California distributor for Edco Phosphor Bronze Electrodes, product of **Eccles & Davies Machinery Company**, Los Angeles. The concern represents a complete line of nationally known welding supplies and electrodes. The MacDonald Company succeeds the Bergstrom Alloys concern which plans to devote full time to manufacturing.

J. F. Francis has been named Western sales manager of the Agricultural Chemicals Division of **Pennsylvania Salt Manufacturing Company**. Mr. Francis, a graduate entomologist from the University of California, joined Penn Salt in 1943. He has served as assistant sales manager in the territory.

Reynolds Meussdorffer, for several years connected with the engineering department of **Robbins & Myers, Inc.**, Springfield, Ohio, and lately with C. R. Hunt, Pacific Coast representative for the company in San Francisco, is opening an office in Los Angeles under direction of Mr. Hunt. His activities will be devoted to electric motors and fans.

C. N. Maxfield has been appointed California district manager for the **Yarnall-Waring Company**, with new sales offices in San Francisco and Los Angeles. Maxfield comes from Detroit sales office of the Philadelphia concern. **Jack Schuyler**, experienced in selling and servicing steam plant equipment, has been added to the Los Angeles office as a sales engineer.

The Lawrence-Totten Co. was recently appointed California agent for the Standard Tube Company, Detroit, manufacturers of electric welded carbon and stainless steel tubing. The firm name was recently changed from J. B. Lawrence & Co. The change was made when Melvin L. Totten joined it. Los Angeles office is located at 714 W. Olympic Blvd., Los Angeles 15.

Leroy T. McGuire

Leroy T. McGuire, formerly in charge of sales for the **Joshua Hendy Iron Works,** Sunnydale, Calif., has been appointed sales manager for the **Signode Steel Strapping Company,** Chicago, Ill. McGuire has a background of long experience in sales work.

Eugene W. Gerbereux, who has been associated with **Walter Dorwin Teague,** industrial designer, since 1938, has been made a partner in the firm, and will serve as manager of the Los Angeles office of the company in the Title Guarantee Bldg. At the same time, Mr. Teague announces that **James Roper Scales** and **Charles M. Richards, Jr.,** who holds an A.B. degree in mechanical engineering from Stanford University, have been taken into the West Coast partnership. The partnerships will continue to operate as a unit under the name of **Walter Dorwin Teague.**

W. S. Twilley assumed duties as general sales manager of the **Holly Sugar Corporation,** Colorado Springs, on January 1. Walter H. Forslund has been named sales office manager. Warren E. Farnam, Stockton, continues as Western sales manager.

Nelson A. Howard, Jr.

Nelson A. Howard, Jr. has joined the staff of **A. R. Maas Chemical Co.,** 4570 Ardine Street, South Gate, Calif., where he will specialize in new market development. Mr. Howard was formerly with American Cyanamid & Chemical in Azusa, Calif., and Houston, Tex., and more recently has been placed on inactive duty with the Naval Air Corps. He served over three years of active duty, finishing with the rank of lieutenant commander.

Fred J. Chittenden, for more than 17 years manager of Walworth Company's San Francisco offices, has been named manager of West Coast sales, succeeding John M. Olmsted, for many years a vice president in charge of sales on the Pacific Coast for the company which manufactures valves and pipe fittings. Mr. Olmsted retired Dec. 31, 1945. Mr. Chittenden will continue his headquarters at San Francisco.

Louis F. Melson

Louis F. Melson, who has been associated with the **Geo. M. Prescott Co.** for the last two years, has been appointed manager of the new power driven industrial truck division which opened January 1. The division has taken over exclusive distribution of the HydroLectric Trucks, manufactured by Lift Trucks, Inc.; Crescent Electrically Driven Trucks, manufactured by the Crescent Truck Company; and MacDonald Gasoline Driven Fork Truck, manufactured by the MacDonald Truck & Manufacturing Co., San Francisco, Calif.

Capt. Jack Ryan has joined the **Northwestern Portland Cement** company's sales staff, located in the Seattle general office, 1701 Northern Life Tower. He was born and raised in Seattle and after attending the University of Washington joined the Army Air Forces. He was with the army for four years.

W. B. Elliott has been appointed manager of **Continental Oil Company's** Albuquerque marketing division, which includes New Mexico and part of Texas. He succeeds **J. P. Anthony,** a veteran of nearly 30 years service with Continental, who becomes Conoco commission representative in Colorado Springs. Elliott, formerly division manager for Continental at Denver, has been with the company since 1919. Anthony has been manager of the New Mexico division since Nov. 1, 1932. He joined Continental as district superintendent at Denver in 1916, transferring to Ponca City in 1930 to handle national sales and promotion.

A. L. Johnson, branch manager for **Simonds Saw & Steel Company,** 228 First Street, San Francisco, announces that the corporate name of **The Abrasive Company** of Philadelphia whose products are sold by his company, has been changed to **Simonds Abrasive Company,** to more specifically designate the company and its product. A new Simonds master trademark will be officially adopted. It will identify all products of Simonds Abrasive Company as well as those manufactured by all branches of the Simonds Saw and Steel Company. There will be no change in ownership, management or policy. The Simonds Saw & Steel Company has branches in Portland and San Francisco.

Don Kennedy has been appointed sales promotion manager for all divisions of **Jantzen Knitting Mills,** Portland. Kennedy, who was recently discharged from the Navy, was assistant sales manager at Jantzen's before the war, and had been with the company since 1938.

The Navy Builds For PERMANENCE

Every businessman and architect now planning an industrial building should study the above photograph carefully. It shows a small part of the great U. S. Navy ammunition depot near Bangor on the Olympic Peninsula. Scores of buildings like this shop were erected with only one thought in mind: to make strong, safe structures.

Note the material used for roofing. It is Keasbey & Mattison Corrugated asbestos-cement sheets—laid by the Asbestos Supply Companies. These sturdy sheets resist fire, weather, corrosion. They are maintenance free. Many industrial builders also have used K & M Corrugated for siding . . . with outstanding success.

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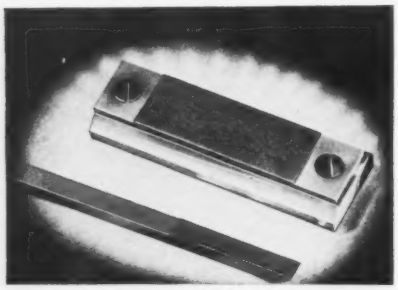
THE SHOWCASE

355

Diamond "R" Files and Hones—A new line of Diamond "R" Files and Hones for dressing carbide cutting tools without removing them from the machine, saving dismounting and setting-up time is announced. Instruments con-



tain a 100 concentration of diamonds in a new and exclusive metal bond which enables both to maintain a flat surface. As a result, sharpened tools do not become "grooved." This exclusive bonding process permits files and hones to be used on high speed steels without loosening diamond particles. File shanks are made of drill rod stock. Each comes in handy leather case with instruction card. Hone is mounted on a Lucite base. Both guaranteed. File measures six inches long, ¼ of inch wide and 3/16 of inch thick; and are available in 240, 320, 400 and 600 grit. Hone measures three inches long, ¾ of inch wide and ½ inch thick. Comes in 400 grit only. *Wendt-Sonis Company, Long Beach, Calif.*

356

Johnson Stock Stand—Designed for the cutting of long, heavy stock on the Johnson Metal Cutting Band Saw, the Johnson Stock Stand is equally as desirable for use with any machine tool. The "overhang" on heavy pieces for machining operations such as drilling, planing, milling, cutting, sawing, etc., is handled efficiently. Of all-steel welded construction it has a heavy load bearing capacity and is non-breakable. Easily anchored to the floor, and is adjustable by a single screw. The roller head is held rigidly in position by two pilot pins on each side of the heavy adjusting screw. Adjustment for height ranges from 22 inches to 32 inches. Weight is 28 pounds. *Johnson Mfg. Corp., Albion, Mich.*

357

Steel Stools — Steel stools, available in five heights and 80 models, having a diversity of industrial and commercial uses, are now being marketed. The models meet posture needs in busy plants and aid materially in increasing employee efficiency by reducing fatigue. The 26" stool pictured is equipped with adjustable back and pressed wood seat (over steel) and steel feet. Is of all welded and non-breakable construction, unusually large, comfortable 14" wide seat, with rounded corners. *Lyon Metal Products, Inc., Aurora, Ill.*

358

Wire Rope Clamp—A new wire clamp called CABL-OX has been developed by Nunn Manufacturing Co., incorporates a wedging action in its component parts. Makes it possible to hold loads in excess of tensile strength of rope used. Unit is alloy steel, cadmium plated for weather protection, streamlined for neat appearance and freedom from obstruction. Easily assembled by unskilled labor and readily disassembled for tightening of stretched lines or other uses. Made in all standard sizes from 1/16" to ¾". *Nunn Manufacturing Co., Evanston, Ill.*

359

Tenite Plastic Pellets for Blasting—Tenite plastic pellets are pictured blasting an oxide surface smut from optical instrument parts. Blown from an ordinary blasting machine, the pellets remove completely minute particles of dust from the pores of sand-cast aluminum-alloy

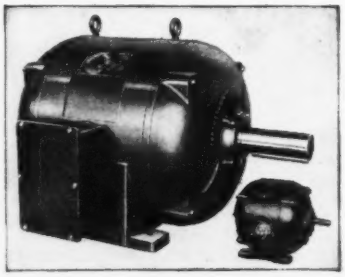
castings which would interfere with accurate functioning of powerful optical instruments. Method draws out dust, imparts a satiny finish to metal without abrasion, quickly and economically. Also may be used for blasting carbon from airplane pistons. *Tennessee Eastman Corp., Kingsport, Tenn.*

360

Heavy, Bulky Objects Easily Moved — A power truck equipped with a horizontal, non-swivel type boom, moving vertically with its shoulder riding in the upright columns of the truck can easily move many types of loads. Useful for single, heavy and bulky objects to which a hook, chain, rope or cable may be attached. Boom functions as a boom on a crane, but complete unit is more compact and can be maneuvered within more limited areas. Truck can carry loads up to 3000 pounds. Boom is available in lengths of 72, 66 and 60 inches, from face of uprights. At lowest point hook is 22 inches above floor level, at highest, 8 feet. *The Elwell-Parker Electric Co., Cleveland, Ohio.*

361

Protected-Type Motors—The line of Crocker-Wheeler Division of Joshua Hendy Iron Works has been extended to include motors up to 200 h.p. Priced the same as conventional open type and rated 40 C rise, full-load continuous duty, with 15 per cent service factor, these motors provide full protection against dripping liquids, falling metal chips and other foreign matter. Built in NEMA standardized frames, 203 to 326 inclusive, have no openings in the frame or shields above horizontal center line. NEMA



standardized frames 326 to 505 as well as three, newly added, larger sizes are basically same in construction with addition of two shielded, air exhaust openings in upper half of frame. Pictured are the B-58 and the smallest, the 203. *Crocker-Wheeler Division of Joshua Hendy Iron Works, Ampere, N.J.*

362

Martois Gas Burner—Adaptable for all industrial uses, the Martois burner is designed so that a large number of gas orifices are used even where boiler front space is limited. Extremely low pressure firing and complete combustion of fuel make substantial gas savings in boiler and furnace maintenance. Burner is furnished complete with connecting nipples and fire-brick splits, inclosed in steel box with louvre type air control, for installation in ash-pit doors, boiler front or furnace wall. Size of assembly determined by boiler rated horsepower, gas pressure available and operating conditions. *Brooks Equipment Co., San Francisco, Calif.*

363

Flexible Tubing—A new type of flexible tubing, non-collapsible under plus or minus pressures and retractable to about ⅛ its extended length, has been developed for portable or semi-portable ventilation or any handling of air, gases or light solids. Its spring steel helix core causes it to spring out to its fully extended length, and will stay in this position regardless of whether working under pressure or suction. The spring core is spiral-stitched within the fabric. Inside surface is free of wire ridges, providing far less resist-

ance to air flow and no obstruction to passage of solids. Lighter than metal duct or moulded tubing and takes up less space when retracted. Has a bursting strength of 170 psi. Fabric is fire-resistant and covered with tough, durable thermoplastic. Furnished in standard diameters from 3/16 inches and lengths of 10, 15 and 25 feet. Built-in couplings permit quick joining or disconnecting. Bulletin available. *The Warner Brothers Company, Spiratube Division, Bridgeport, Conn.*

364

New "Canton" Portable Crane—A new line of "Canton" portable cranes for handling loads where overhead lifting equipment is not available is announced by The Hill Acme Company of Cleveland. The new cranes, made of welded

steel, weigh less than half as much as previous models. Two-speed operation is provided by means of single or double cable for light or heavy loads. Additional leverage for extra heavy loads provided by adjustable extension handle. A self-locking worm mechanism holds load with safety at any point. Now available in all models of one to three ton capacity. *The Hill Acme Company, Cleveland 2, Ohio.*

365

Versatile Labeler—The new Vac Spray Labeler will apply labels from the size of a postage stamp up to those five inches in diameter on containers from ¼ ounce to one gallon size at a rate of from 1200 to 3000 an hour. Not necessary to stop production line to make change-over from one size or shape of label to another, or from one size container to another. Done by turning a knob. Machine uses all types of labels, and containers may vary from glass bottles to cardboard boxes, jugs, etc. Any shape can be handled, no extra attachments required. Labeler is mounted on casters so it can be easily moved. A "magnetic label box" holds labels in place. A "multiple wiper" automatically wipes down labels and containers and wipes off extra glue, saving a hand operation. Machine weighs 1,250 pounds. It is 6 ft. x 2 ft. and 4 ft. high. *Vac Spray Machine Co., Minneapolis 5, Minn.*

366

Press Type Welder—Spot or projection welding can be performed by a new automatic, hydraulically operated press type welder in 30, 50 and 75 KVA capacities. Machine has inverted type hydraulic cylinder through which welding pressure is applied. Cylinder is part of slide or

(Continued on page 96)

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ram, while piston is so-called fixed member, its upper end being secured to top of welder by heavy transverse, adjustable spring. The spring actuates a switch initiating timing controls and provides a quick "reaction" for a fast follow-up on the welding stroke. Pressure adjusted by hydraulic pressure regulator and gauge. Speed of weld is governed by timing controls. Water cooled transformers and water cooled electrodes standard equipment. Available in three sizes with overall range of "work capacity" embracing 26 ga. to 6 ga. steel sheets or comparable material. Bulletin 4520 which includes detailed information available. *Federal Machine & Welder Co., Warren, Ohio.*

367

Two-Color Spray Gun—Sherwin-Williams Co. has developed The Dimeso gun which produces two-coat spatter finishes and simulated hammered finishes which give the effect of iridescent metal in one spraying operation. Ideally suited for automobile dashboards, radio cabinets, sewing machines, lighting fixtures, vacuum cleaners and other metal products where a finish combining beauty and durability is desired. Finish is more durable, faster and cheaper than conventional finishes requiring two or three operations. No dust collecting cracks, wrinkles or fissures. Gun has normal spray fan control valve and fluid control valve, trigger assembly, head, fluid tip and needle, with additional fluid inlet near head of gun accommodating second color paint. Furnished in three types of finishes: Hammered or spot pattern, toned hammer finish, diffused pattern. Can be used on metal, bonderized steel, and plastics. *Sherwin-Williams Co., Cleveland, Ohio.*

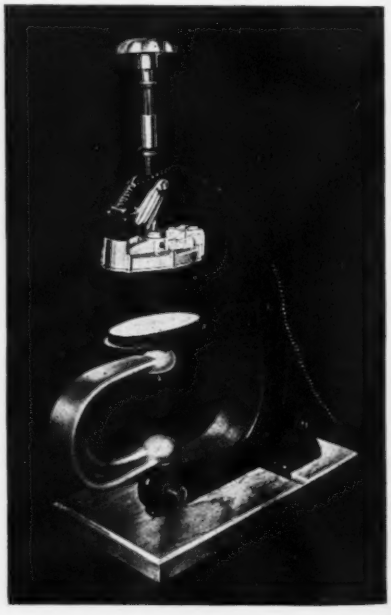
368

Improved Ind-L-Way Drill Grinding Fixtures—Production has been commenced on improved Ind-L-Way Drill grinding fixtures at Industrial Manufacturing Co., Cleveland. Available in two models, they handle all sizes of drills from ¼" to 2⅞" in diameter and up to 26"

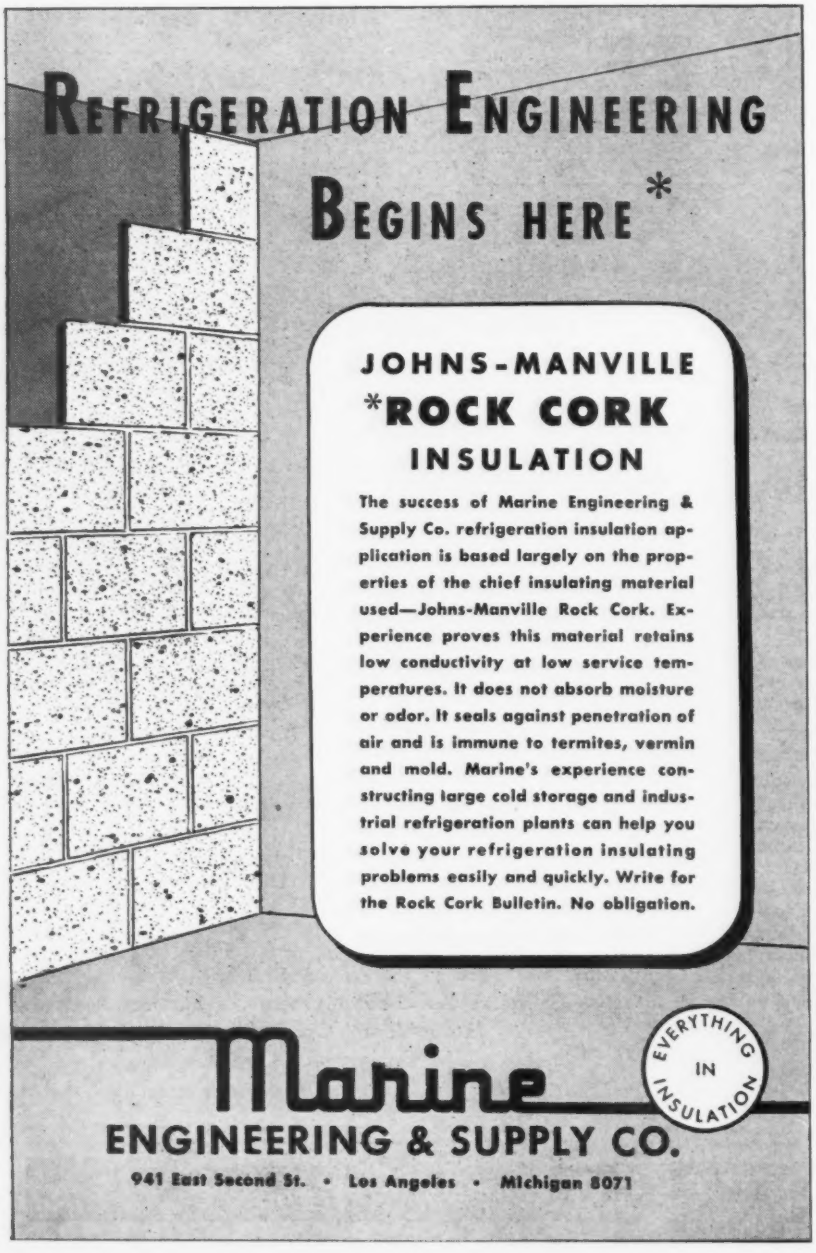
long. The precision ground drill cuts faster and more accurately than hand operation. The grinding operation is faster and only a small amount of drill tip must be removed. Fixtures made for use with Black & Decker and Van Dorn bench and pedestal grinders, or other makes having same dimensions. Adjustments provided for quickly securing proper angle for every cut necessary. Literature available. *Industrial Manufacturing Co., Cleveland, Ohio.*

369

Resistoflex Vulmaster—Tire and Tube repairs are speeded by automatic Resistoflex Vulmaster which requires only four inches of bench space but will economically repair injuries of any size on truck, bus or airplane tubes as well as passenger car tires of all sizes at cost of only few cents a repair. Radial cuts occurring on side walls of tires may be repaired without removing the tire from wheel and without deflating. A small fuse automatically controls temperature so that when flow-point of rubber is reached electricity is shut off and curing begins. Machine



needs no watching. Machine received its "baptism" under war conditions and is now available for civilian use. *Resistoflex Corp., Belleville, N.J.*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*ROCK CORK
INSULATION
The success of Marine Engineering & Supply Co. refrigeration insulation application is based largely on the properties of the chief insulating material used—Johns-Manville Rock Cork. Experience proves this material retains low conductivity at low service temperatures. It does not absorb moisture or odor. It seals against penetration of air and is immune to termites, vermin and mold. Marine's experience constructing large cold storage and industrial refrigeration plants can help you solve your refrigeration insulating problems easily and quickly. Write for the Rock Cork Bulletin. No obligation.
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YOURS FOR THE ASKING

1905

Norelco Industrial X-Ray Equipment—A 12-page booklet describing industrial X-ray equipment for fluoroscopy, radiography, diffraction and spectrometry is now available. Text covers Searchray Models 80 and 150, with radiograph illustrations showing X-ray applications; Searchray Model 150 CF (conveyor type); Searchray Model 90 (mobile unit); X-ray spectrometer and camera-type X-ray diffraction unit, and contains convenient application chart which shows the unit best suited for a given task. *North American Philips Co., Inc., New York 17, N.Y.*

1906

Isaacson Klearing Dozer—A new, two-color, eight-page folder (AD-I) on profitable land clearing has just been released. First developed as a means of making logged-off stump land usable, the Klearing Dozer has cut clearing costs as much as 75 per cent according to actual reports from users in the Pacific Northwest. The blade consists of an extra heavy moldboard equipped with long, adjustable teeth that penetrate the ground as much as 21 inches. They lift out rocks and roots, remove stumps and trees and leave ground all ready for discing without burying valuable top soil. Blade is interchangeable with regular dirt blade of either Isaacson cable or hydraulic operated Trac-Dozer. *Isaacson Iron Works, Seattle, Wash.*

1907

Edco Electrodes—The title of the new booklet which describes in detail the physical and chemical properties of time-tested phosphor bronze electric welding rods. Gives uses and techniques for welding copper, bronze, cast iron, steel and their alloys; and contains a polarity table and direction for best welding results. Copies available. *Welding Division, Eccles & Davies Machinery Co., Inc., Los Angeles 21, Calif.*

1908

New Contract Catalogue—The Contract division of Thomas Machine Manufacturing Co., has published a new five-section catalogue illustrating numerous types of special machinery and contract machine work it is equipped to build to customers' designs and specifications. The company makes equipment for steel mills and allied industries, dredge pumps, lock and dam machinery, dredge ladders, lathes and other special machinery, dies, jibs and fixtures and miscellaneous machine work. *Contract Division, Thomas Machine Manufacturing Co., Pittsburgh, Pa.*

1909

Ex-Cell-O Production Parts—Products of the Ex-Cell-O company are described in a new folder by the corporation. Of special interest are graphic interior photographs of production departments, showing machinery used in parts output. Company can handle parts from rough stock to finished pieces. Engineering, machining, heat treating, grinding, sub-assembling and inspection are all performed under one management. *Ex-Cell-O Corp., 1200 Oakman Blvd., Detroit 6, Mich.*

1910

Mechanically Cleaned Bar Screens — An eight-page booklet describing Rex mechanically cleaned bar screens is being distributed. An explanation of what the machine is and how it operates, as well as a presentation of its exclusive features, is combined with typical job photographs and application drawings. A section of brochure describes Rex Triturator as used in conjection with the bar screen. *Chain Belt Company, Milwaukee 4, Wis.*

1911

Chemaco Molding Materials—Are described in a new booklet. They are cellulose acetate, ethylcellulose, polystyrene and vinyl compounds. Formulae and colors of plastics are given, the Chemaco Engineering Service is described, as well as the many products of the company, a good many of which are pictured. Brochure includes much technical data and comparative general properties of the different plastics. *Chemaco Corp., Berkeley Heights, N.J.*

1912

Vision Checking Program—Developed on behalf of industry and designed to promote industrial efficiency and safety by quickly spotting those employees who need an eye examination and correction, a new vision-checking program is announced by American Optical Co. Complete details are in new brochure "Industrial Visual Efficiency, A Management Opportunity," which describes the plan, its installation and operation, and the benefits to be obtained. The AO Sight Screener, a new instrument which is portable and can be carried directly into a factory for checking each employee's visual performance, helps detect the visually unfit. Data on 14 different visual functions can be obtained in three or four minutes. *American Optical Co., Southbridge, Mass.*

1913

Facts About Rotary Pumps—Blackmer Bulletin No. 307 carries for the first time a comprehensive illustration and description of the new type of removable liner which is now standard construction in Blackmer power pumps. Features of the pumps are illustrated in color. Representatives and sales offices listed. *Blackmer Pump Co., Grand Rapids 9, Mich.*

(Continued on Page 98)

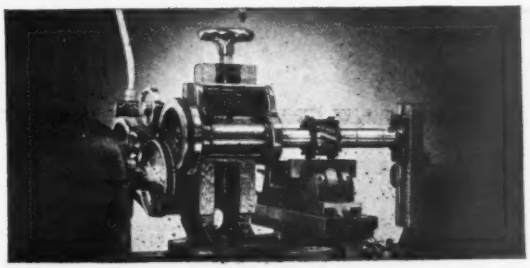
New Unit Makes Milling Machine Out of Lathe in 3 Minutes!

The Globe Miller, a unit quickly attached to a standard lathe, performs the same operations as a costly milling machine. Installed in 3 minutes or less, the Globe Miller operates almost identically to a standard milling machine. All controls are simple, highly accurate—and the miller is designed to utilize all speeds and feeds of the lathe.

It is accurate, durable and highly versatile. With minor adjustments and accessories, the miller will face castings; cut slots, keyways, and gears; perform slitting operations, etc. Quality materials and rugged construction enable it to stand the hardest use. It costs but a fraction as much as a standard miller. Its compact design makes storage possible underneath the lathe. Proved performance in wartime production, assures dependable service.

Performance has also proved that chewing gum helps you on the job—by seeming to make work go easier, time go faster. Today, you'll see good chewing gum on the market. But a shortage still exists. Wrigley's Spearmint Gum is taking this space for your information, and for now, we'd like to suggest that you use any good available brand. Remember: It's the chewing that's good for you.

You can get complete information from Globe Products Mfg. Co., 3380 Robertson Boulevard Los Angeles 34, California



AA-55

YOURS FOR THE ASKING *(From Pg. 97)*

1914

New Product Notes—A new booklet by Dow Corning Corp., describes use of two Silicone products, DC Mold Release Fluid and DC 7 Compound, by rubber and plastics industry. These Silicone mold release agents serve as lubricants which reduce friction between dies and plastic materials, improve plastic flow, reduce surface striation, and afford easy release from fold or from rubber bags used in low pressure laminating. *Dow Corning Corp., Midland, Mich.*

1915

Airport Design and Construction—"Looking Ahead to the Airport Center of Tomorrow" is the name of the new project study issued by the Ric-wiL Company, Cleveland. The study deals with central heating at a modern airport center and demonstrates how the application of the principle can affect the entire conception of airport design. It deals with hypothetical airports designed to serve hundreds of medium and smaller sized cities in the country, which could logically support retail establishments, amusement places, hotels, residences, manufacturing and warehousing activities. With a central steam plant, objections of chimneys, smoke and soot formerly associated with such construction at an airport, are removed. *Ric-wiL Company, Cleveland, Ohio.*

1916

Corrosion-Resistant Masonry Material and Construction Manual—A new booklet prepared by the engineering staff of U. S. Stoneware, Bulletin 810, is full of helpful facts and suggestions pertaining to materials and construction methods for tanks, towers, sumps, floors and other masonry construct. Available to engineers and others interested in corrosion-proof masonry. *U.S. Stoneware Company, Akron 9, Ohio.*

1917

Electrical Power, Disciplined—A new bulletin just released by Sola Electric Co. contains a complete discussion of construction and operating theory of the Constant Voltage Transformer, engineering and operating data, a survey of line conditions that make such transformers necessary, and a section devoted to new developments resulting from the company's war-time experience. Contains many suggestions to practical use of transformers as a built-in component of electronic and electrically operated instruments and equipment. Catalog section lists 31 standard types in capacities ranging from 14 VA to 10,000 VA with complete electrical and mechanical specifications. Bulletin CV-102. *Sola Electric Co., Chicago 14, Ill.*

1918

Portable A-C Test Sets—A new 24-page bulletin, containing data and descriptive information on the complete line of portable A-C test sets from 2,000 to 150,000 volts, is announced by General Electric. Users of high-voltage testing equipment can compare features and ratings of various standard sets which are illustrated and select the equipment best suited to their individual requirements. Included are small insulation testers, oil testers and larger general-purpose test sets, with ratings as high as 25 kva. *General Electric Company, Schenectady 5, New York.*

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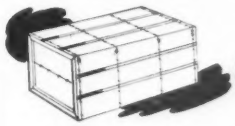

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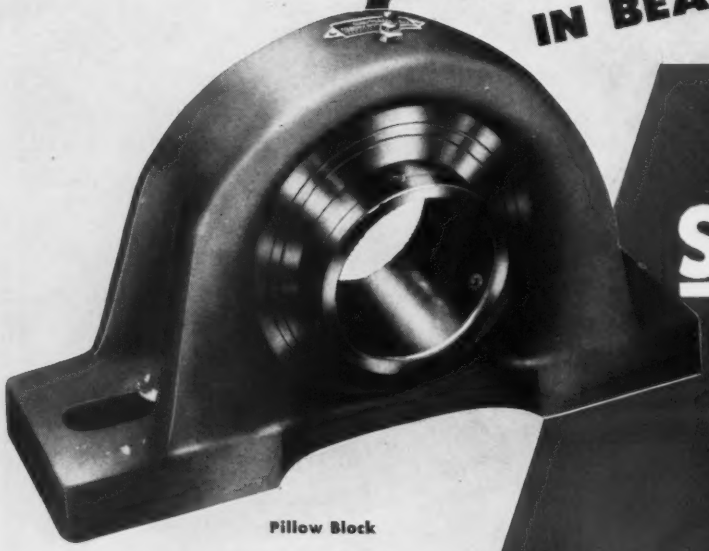

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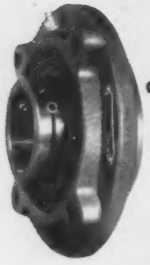
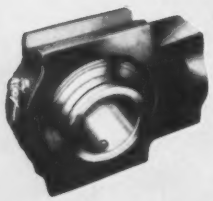


Flange Cartridge Unit

Flange Unit



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